



USAID
FROM THE AMERICAN PEOPLE



Partners for Health Reformplus

Assessment of Pharmacy and Inventory Control in Ministry of Health Hospitals in Jordan

March 2006

Prepared by:

Dr. Hamza Talafha
PHRplus/Jordan

This document was produced by PHRplus with funding from the US Agency for International Development (USAID) under Project No. 936-5974.13, Contract No. HRN-C-00-00-00019-00 and is in the public domain. The ideas and opinions in this document are the authors' and do not necessarily reflect those of USAID or its employees. Interested parties may use the report in part or whole, providing they maintain the integrity of the report and do not misrepresent its findings or present the work as their own. This and other HFS, PHR, and PHRplus documents can be viewed and downloaded on the project website, www.PHRplus.org.



Abt Associates Inc.
4800 Montgomery Lane, Suite 600 ■ Bethesda, Maryland 20814
Tel: 301/913-0500 ■ Fax: 301/652-3916

In collaboration with:

Development Associates, Inc. ■ Emory University Rollins School of Public Health ■ Philoxenia International Travel, Inc. ■ PATH ■ Social Sectors Development Strategies, Inc. ■ Training Resources Group ■ Tulane University School of Public Health and Tropical Medicine ■ University Research Co., LLC.

Order No TE 089



Mission

Partners for Health Reformplus is USAID's flagship project for health policy and health system strengthening in developing and transitional countries. The five-year project (2000-2005) builds on the predecessor Partnerships for Health Reform Project, continuing PHR's focus on health policy, financing, and organization, with new emphasis on community participation, infectious disease surveillance, and information systems that support the management and delivery of appropriate health services. PHRplus will focus on the following results:

- ▲ *Implementation of appropriate health system reform.*
- ▲ *Generation of new financing for health care, as well as more effective use of existing funds.*
- ▲ *Design and implementation of health information systems for disease surveillance.*
- ▲ *Delivery of quality services by health workers.*
- ▲ *Availability and appropriate use of health commodities.*

March 2006

Recommended Citation

Talafha, Hamza. March 2006. *Assessment of Pharmacy and Inventory Control in Ministry of Health Hospitals in Jordan*. Bethesda, MD: The Partners for Health Reformplus Project, Abt Associates Inc.

For additional copies of this report, contact the PHRplus Resource Center at PHR-InfoCenter@abtassoc.com or visit our website at www.PHRplus.org.

Contract/Project No.: HRN-C-00-00-00019-00

Submitted to: USAID/Amman

and: Karen Cavanaugh, CTO
Health Systems Division
Office of Health, Infectious Disease and Nutrition
Center for Population, Health and Nutrition
Bureau for Global Programs, Field Support and Research
United States Agency for International Development

Abstract

The pharmaceutical and medical supply system for Ministry of Health hospitals in Jordan is bureaucratic and centralized. Routine paperwork consumes staff time that ideally would go to patient care, procurement does not necessarily match medical needs, pharmacists have little access to the latest information, and resources are limited. This assessment looks at the pharmaceutical system in terms of structure, process, and outcomes to identify its strengths and weaknesses. Drug utilization is measured against internationally established indicators. Based on its findings, the assessment makes recommendations that are intended to lead to improvements in patient care, administrative procedures, use of staff, and financial resources.

Table of Contents

Acronyms	ix
Acknowledgments	xi
Executive Summary	xiii
1. Introduction	1
1.1 Background	1
1.2 Purpose	1
1.3 Scope	2
2. Assessment Methodology	3
3. Key Findings	7
3.1 Structure	7
3.2 Processing and Outcomes	12
3.3 Drug Utilization Indicators	13
3.4 Strengths and Weaknesses of Pharmacy Practices	14
4. Analysis and Discussion	29
4.1 Structure	29
4.2 Processing and Outcomes	31
4.3 Drug Utilization Indicators	31
5. Recommendations	35
Annex A: Assessment Results, by Hospital	37
Annex B. Indicator Lists	161
Annex C. References	163

List of Tables

Table 1: Indicators Used to Examine Drug Utilization.....	13
Table 2: Results of Drug Utilization Indicators at MOH Hospitals	14

List of Figures

Figure 1: Distribution of Pharmacy Staff *	10
Figure 2: HPD Workload	11
Figure 3: The Average Number of Medications Prescribed per Outpatient Prescription	16

Figure 4: Average Percent of Drugs Prescribed from the NDFL.....	17
Figure 5: Average Percent of Outpatients Prescribed Injectables.....	18
Figure 6: Average Percent of Prescribed Drugs Actually Dispensed	19
Figure 7: Weighted Average Percent of Inventory Variation for a Set of Indicator Drugs	20
Figure 8: Average Percent of Individual Variation for a Set of Indicator Drugs.....	21
Figure 9: Average Percent of Stock Records that Corresponds with Physical Counts for a Set of Indicator Drugs	22
Figure10: Average Percent of a Set of Unexpired Indicator Drugs	23
Figure 11: Average Percent of Time Out of Stock for a Set of Indicator Drugs	24
Figure 12: Average Percent of Drugs Prescribed by Generic Name.....	26
Figure 13: Percent of Outpatients Prescribed Antibiotics.....	27

Acronyms

AB OB	Abu Obaidah Hospital
ADR	Adverse Drug Reaction
AJ	Al-Eman Hospital / Ajloun
BD	Princess Badee'a Hospital
BS	Princess Basma Hospital
BSH	Al-Basheer Hospital
FEFO	First Expired First Out
FS	Prince Faisal Hospital
G.SA	Ghor Al-Safi Hospital
HPD	Hospital Pharmacy Department
HPDs	Hospital Pharmacy Departments
HIS	Hospital Systems Improvement
HUS	Al-Hussein Hospital
JR	Jarash Hospital
KR	Al-Karak Hospital
MA	Ma'an Hospital
MF	Al-Mafraq Hospital
MF G/P	Al-Mafraq Gynecology / Pediatrics
MMS	Main Medical Stores
MOH	Ministry of Health
MU	Mu'ath Bin Jabal Hospital
NA	Not Available
ND	Al-Nadeem Hospital
NDFL	National Drug Formulary and List
NDP	National Drug Policy
NEDL	National Essential Drug List
P.IM	Princess Iman Hospital
P.SL	Princess Salma Hospital
PHR^{plus}	Partners for Health Reform Plus Project
PTC	Pharmacy and Therapeutic Committee
Q.RN	Queen Rania Hospital
QCL	Quality Control Laboratory
RH	Princess Rahma Hospital

RM	Al-Ramtha Hospital
RW	Al-Rwaished Hospital
RY	Princess Raya Hospital
SH	Al-Shuneh Hospital / South
TU	Jameel Tutanji Hospital
UDS	Unit Dose System
YR	Al-Yarmouk Hospital
ZR	Zarka Hospital

Acknowledgments

The United States Agency for International Development made this assessment possible. We express our sincerest gratitude to His Excellency the Minister of Health, Engr. Sa'id Darwazeh, for supporting and sustaining this effort. We would like also to acknowledge the great assistance provided during all phases of the survey by Dr. Isma'eel As'sadi, Assistant to the Secretary General for Administrative Affairs, and for his prompt response in reacting with the recommendations of *PHRplus* to promote the highest quality of pharmaceutical services at Ministry of Health hospitals. Many thanks also for all hospital directors, heads of pharmacy departments, and to *PHRplus* counterparts Dr. Abel Razzac S.H. Shafei and Dr. Ayyoub Sayyid Khalil As-Sayaideh for their valuable assistance in facilitating the attainment of this study, and in managing discussions during all workshops held to disseminate the assessment results and discuss *PHRplus* recommendations.

We would also thank *PHRplus*/Jordan chief of party Dr. Dwayne Banks for his valuable comments and advice throughout the assessment process as well as our *PHRplus*/Jordan colleagues Dr. Anwar Khasawneh and Mrs. Rasha Ghanoum Lutfi.

Finally we would like to thank our survey team members, for their outstanding and tremendous field work: Dr. Saleem Amareen, Dr. Ali Al-Shehab, and Dr. Lubna Kharabsheh.

Executive Summary

This pharmacy and inventory control assessment of Jordanian Ministry of Health (MOH) hospitals, undertaken in conjunction with Partners for Health Reform*plus* (PHR*plus*), had the following goals:

- ▲ Define the status of each hospital's pharmacy system including strengths and weaknesses
- ▲ Provide information to assist in the design of interventions
- ▲ Provide information to help define resources and budget requirements
- ▲ Monitor the changes in the system and the impact of interventions
- ▲ Compare the performance of different systems

Pharmacy services in MOH hospitals are provided by a complex, bureaucratic system in which personnel are overworked and resources are greatly limited. Lack of computerization exacerbates this situation. Pharmacy staffs spend extensive time on administrative tasks such as drug distribution and procurement, to the detriment of pharmacotherapy, i.e., pharmaceutical services provided to patients.

In addition, a lack of access to current and updated medication information and professional training opportunities constitute a fundamental obstacle to the provision of effective and up-to-date pharmaceutical services.

The assessment surveyed three aspects of hospital pharmacy departments (HPDs) in 26 MOH hospitals:

- ▲ Structure
- ▲ Processing
- ▲ Outcomes

Each topic was evaluated against a subset of indicators. The indicators are qualitative (expressed in the presence or absence of a subject), or quantitative (expressed in numbers), in order to obtain a reasonably complete overview of the pharmacy system.

The survey identified the strengths and weaknesses listed below.

Strengths

- ▲ Strict adherence of all HPDs to MOH regulations regarding narcotics.

- ▲ All records and forms used to perform HPD work are standardized and designed centrally by the MOH.
- ▲ Pharmacy staffs are enthusiastic about and supportive of any program that will enhance their performance and build up their capacity.
- ▲ There is good control of expensive drugs at some hospitals.
- ▲ The average number of medications per prescription is rational and lies within international figures.
- ▲ The average percent of medications prescribed from the National Drug Formulary and List (NDFL) is relatively high.
- ▲ The average percent of injectables prescribed to outpatients is acceptably low, in fact lower than international figures.
- ▲ The availability of essential medications, at the time of study, was excellent.
- ▲ The average percentage variations between stock records and physical counts were low and within international figures.
- ▲ The correspondence between stock records and physical count was acceptable.
- ▲ The average percentage of unexpired medications available at HPDs dispensaries and storage sites was extremely high (100 percent).
- ▲ The average percent of time that individual medications were out of stock was low (at the time of survey) and within international figures.

Weaknesses

The following challenges were common to most MOH hospitals:

- ▲ Pharmacists sometimes delegate dispensing responsibilities to pharmacy technicians. This contravenes the Pharmacy and Medication Temporary Law No. 80, Article 19, of 2001, and its modification No. 30, of 2003.
- ▲ The number of pharmacists is inadequate and there is need for proper selection and distribution criteria in staffing hospitals.
- ▲ Pharmaceutical care is not satisfactorily provided to patients due to the fact that clinical pharmacy services are not yet implemented in MOH hospitals.
- ▲ Proper drug information sources are lacking and training opportunities for pharmacy staff are limited.
- ▲ Proper fire alarm systems and fire-fighting equipment is inadequate at some hospitals in terms of numbers, types, and distribution, as is staff training on the use of such equipment.
- ▲ Organizational structures and job descriptions for the HPDs have not been disseminated.

- ▲ An inactive adverse drug reaction monitoring and reporting system is needed.
- ▲ Medication quantification requirements are not estimated according to actual hospital needs and standard procedures. Estimation of medication needs is processed centrally without direct involvement or active contribution of the hospital pharmacists.
- ▲ No hospital had a policy for keeping emergency stocks of essential drugs at the time of the survey.
- ▲ There is no active policy recommending body, such as the pharmacy and therapeutic committees (PTCs) and antibiotic committees, in any hospital.
- ▲ There are improper stock recording practices in some hospitals (untidy records and poor recording of drugs).
- ▲ Prescribing medications by their generic names was found to be unpopular among physicians.
- ▲ Antibiotics are overused; nearly half of outpatient prescriptions contain one or more such agent.
- ▲ A system is needed to randomly monitor medications at dispensaries and stores to ensure that they retain quality.

Recommendations

Pharmacy premises and storage

- ▲ The suitability of buildings, adequacy of working space, appropriateness of sites and the maintenance requirements of all dispensaries and storage sites need to be evaluated by a team of engineering, pharmaceutical, and administrative experts.
- ▲ Storage space in Princess Basma, Jarash, and Princess Badee'a hospitals, and dispensary space in Princess Basma, Jarash, Princess Badee'a, and Princess Raya should be expanded.
- ▲ There is need for proper pharmaceutical preparation areas in almost all hospitals.
- ▲ Storage conditions (temperature, ventilation, humidity, sanitation, and hazards) should be controlled, monitored, and appropriately documented.
- ▲ All cooling equipment should have a permanent calibration system with documentation.
- ▲ Some hospitals need safer storage cabinets for narcotic drugs.
- ▲ Staff should be trained on good storage practices.

Drug information

- ▲ There should be proper information and reference resources on all medications.
- ▲ The NDFL should be effectively disseminated to all health professionals.

- ▲ Each hospital needs specialized and well-trained clinical pharmacists to provide pharmacotherapeutic care. These pharmacists also should be able to provide information about proper medication usage to health care providers, patients, and colleagues.

Safety and security

- ▲ There should be a comprehensive assessment of security and safety measures and related equipment, with special focus on alarms and fire-fighting equipment (types, quantities, and locations); staff should be trained on equipment usage in collaboration with Civil Defense Directorates.
- ▲ There is need for proper security and protection measures for some storage sites and pharmacy outlets, including a system for controlling and properly handling the keys of pharmacies, stores, and narcotics cabinets as well as a recording system.

Personnel

- ▲ Pharmacists should be recruited according to a plan with proper selection and fair distribution criteria in compliance with the patient load at each hospital.
- ▲ There is need for a training plan for pharmacists and technicians, with technical grading and a professional performance assessment system with related incentives, similar to that used in the Royal Medical Services.
- ▲ Clinical pharmacy and pharmaceutical care concepts should be introduced for the provision of equitable and value-added pharmaceutical care to all patients.

Professional

- ▲ Functioning PTCs and antibiotic and infection control subcommittees should be established in each hospital.
- ▲ Standard operation procedures covering all aspects of professional pharmacy practices should be developed and disseminated, and continuously revised and updated.
- ▲ All health professionals should be trained to effectively utilize the NDFL, and prescribe generic medications in their practices whenever possible.

Inventory management

- ▲ Drug procurements should be based on proper quantification, taking into account data on actual drug consumption at each health facility.
- ▲ A system for proper distribution and control of medications in hospital wards/nursing stations and critical care areas should be implemented based on the unit-dose system that relies on actual medication orders for each patient.
- ▲ There is need for a system to monitor and control the expiration dates of medications.
- ▲ Each hospital should have a pharmacist on call after hours, to provide pharmaceutical services coverage 24 hours.

1. Introduction

1.1 Background

Because pharmaceuticals occupy an important place in health care and constitute a significant share in health expenditure in Jordan, the Ministry of Health (MOH) is considering the improvement of pharmaceutical services and inventory management as part of its strategy for a more efficient and higher quality health care system.

This assessment examines Jordanian pharmacy services against standard criteria, to determine how best to plan interventions that will optimize the quality of pharmaceutical services and patient care at MOH hospitals. The assessment was done with assistance from the Partners for Health Reform *plus* (PHR*plus*), the U.S. Agency for International Development's flagship project in health sector reform.

The status of pharmacy services in MOH hospitals is tied to a routinized, complex system. Personnel are overworked and pharmaceutical resources are greatly limited. Lack of computerization exacerbates this situation. Pharmacy staffs – in particular, the trained pharmacists – spend extensive time on administrative tasks such as drug and medical supplies distribution, procurement, and other processing, to the detriment of pharmacotherapy, i.e., pharmaceutical services provided to patients. Furthermore, pharmacists delegate most of their professional responsibilities, including dispensing drugs, to technicians, in violation of the Pharmacy and Medication Temporary Law No. 80, Article 19, 2001, and its modification No. 30 of 2003, which restricts this responsibility to pharmacists.

The assessment evaluated the structure, processes, and outcomes of pharmaceutical use and inventory management services. Medication use was evaluated by retrospectively reviewing 100 outpatient prescriptions collected randomly from each hospital site. The prescribing practices and inventory evaluation was based on drug use indicators that focus on two major aspects of medication use: the prescribing behavior of physicians, and the supply inventory management system for medications. The overall findings of this assessment are described below; Annex A contains the more detailed findings for each hospital.

1.2 Purpose

The key objective of the assessment is to provide MOH with the information it needs to:

- ▲ Define the status of each hospital pharmacy department (HPD), including its strengths and weaknesses
- ▲ Design and plan interventions
- ▲ Identify resources and budget requirements
- ▲ Monitor the changes in the system and the impact of interventions

- ▲ Compare the performance of different systems

It also will serve as the baseline against which interventions in pharmacy practice, medication use, and inventory management will be measured.

1.3 Scope

PHR*plus* developed an assessment manual (Talafta and Ghannoum, 2004) that contains the assessment methodology, data collection forms, and other material used to survey the hospitals. The manual covered the following pharmaceutical management topics:

- ▲ The availability of written policies, legislation, and regulations concerning therapeutics and inventory management
- ▲ The availability of the National Drug Formulary and List (NDFL), National Essential Drug List (NEDL), and drug information system
- ▲ Budget and finance
- ▲ Pharmaceutical procurements
- ▲ Pharmaceutical logistics
- ▲ Drug utilization
- ▲ Product quality assurance
- ▲ Monitoring and management information

The assessment was performed in two phases, as discussed in the following chapter.

2. Assessment Methodology

The HPDs assessment manual used in this study (Talafta and Ghannoum, 2004) covers the areas of structure, processing, and outcomes.

To assess HPD structure, data were collected using dichotomy (Yes, No) questions, or trichotomy (Yes, No, Not available) questions. Structure criteria include the following:

- ▲ Pharmacy premises
- ▲ Tools and equipment
- ▲ Storage
- ▲ Drug information
- ▲ Safety and security
- ▲ Human resources

Processing and outcomes criteria include the following:

- ▲ Medication needs
- ▲ Stock and inventory control
- ▲ Records and documents
- ▲ Supply process
- ▲ Dispensing
- ▲ Monitoring of medication use
- ▲ Quality assurance

Collecting data on all drugs used by HPD would have been the ideal but was impossible in terms of time and resource limitations. Therefore, data were collected for a standard list of 25 medications (“indicator drugs”) that:

- ▲ Are commonly used:
- ▲ Are available all the time
- ▲ Are included in the NDFL

- ▲ Cover a range of therapeutic categories
- ▲ Are used in all levels of health care

Lists of the indicator drugs are in Annex B. Drug-use evaluation data were collected retrospectively from 100 prescriptions, selected randomly from each hospital covering a similar period of time. Data were collected by three pharmacists, who were trained to perform their tasks with a common understanding of study objectives and procedures. They collected data from each hospital using forms in the assessment manual to interview HPD heads, pharmacists, and pharmacy technicians; the surveyors also made their own observations.

The assessment was performed in two phases. The first covered 11 general MOH hospitals, which were involved by the Hospital Systems Improvement (HSI) plan (previously called the Decentralization Plan):

1. Al-Basheer Hospital – Amman
2. Zarka Hospital – Zarka
3. Basma Hospital – Irbid
4. Jarash Hospital – Jarash
5. Al-Hussein Hospital – Al-Sult
6. Al-Karak Hospital – Al-Karak
7. Prince Faisal Hospital – Yajooz
8. Jameel Al-Tutanji Hospital – Sahab
9. Princess Rahma pediatric Hospital – Irbid
10. Princess Badee'a Hospital – Irbid
11. Princess Raya Hospital – Dair Aby Sa'eed

The second phase covered the remaining 15 peripheral hospitals:

1. Ma'an Hospital – Ma'an
2. Al-Eman Hospital – Ajloun
3. Al-Nadeem Hospital – Ma'daba
4. Queen Rania Al-Abdullah Hospital – Wadi Mousa
5. Ghor Al-Safi Hospital – Ghor Al-Safi
6. Al-Ramtha Hospital – Al-Ramtha
7. Al-Yarmouk Hospital – Um Qaise

8. Abu-Obaidah Hospital – Jordan Valley
9. Al-Shuneh Hospital – South Shuneh
10. Al-Mafraq (Gynecology/Pediatrics) Hospital (G/P) – Al-Mafraq
11. Mu'ath Bin Jabal Hospital – Jordan Valley
12. Princess Salma Hospital – Theban
13. Princess Iman Hospital – Ma'adi
14. Al-Rwaished Hospital – Al-Rwaished
15. Al-Mafraq Hospital – Al-Mafraq

3. Key Findings

This chapter discusses comprehensive results of the HPD assessment. More detailed information for individual hospitals is in Annex A.

3.1 Structure

Pharmacy premises

- ▲ Generally, the buildings of recently established hospitals were found suitable. For the older facilities, the situation varied. For example: at Zarka hospital, the dispensing pharmacy and storage premises are located off the hospital/clinic campus, potentially requiring patients to cross a major streets several times in order to fill a prescription and re-contact the physician when the prescribed drugs are not available. At Al-Eman hospital, the dispensary shared a room with the hospital's phone station.
- ▲ Most MOH hospitals have dispensaries with dispensing counters accessible to the public. In Al-Mafraq hospital, the pharmacy lacks a dispensing outlet and counter; patients enter the pharmacy hall itself to fill their prescriptions. Jarash, Princess Rahma, Ma'an, and Al-Nadeem hospitals had insufficient dispensing outlets and working area.
- ▲ No hospital monitored storage temperatures or humidity.
- ▲ No calibration and registration system for refrigerators, freezers, and air-conditioning equipment was found at any hospital.
- ▲ Storage capacity is inadequate at Jarash, Princess Raya, Princess Badee'a, Al-Nadeem, Al-Iman, Ma'an, and Princess Iman hospitals.
- ▲ There are no specific areas designed for pharmaceutical preparation at any hospital except Al-Basheer and Al-Hussein hospitals, where a space has been assigned exclusively for some topical and dermatological preparations.

Tools and equipment

- ▲ Almost all hospital dispensaries lacked tablet/capsule counting tools. An exception is Al-Basheer hospital.
- ▲ Jarash, Princess Basma, Mu'ath Bin Jabal, Ma'an, and Ghor Al-Safi hospital pharmacies are not equipped with hot and cold water sinks.
- ▲ There are enough shelves and wooden pallets to elevate medications off the ground in all HPDs except Jarash, Princess Basma, Al-Eman, Ma'an, Rwaished, Al-Nadeem, Shuneh, and Princess Iman's pharmacy stores.

- ▲ All pharmacies and stores are supplied with enough refrigerators and air conditioning systems except in Princess Rahma, Al-Nadeem, and Al-Eman hospitals.

Storage

- ▲ The pharmacies and storage sites are secured in all hospitals except the dispensary of Al-Eman hospital, and the emergency pharmacy of Al-Karak hospital.
- ▲ Narcotics are stored in secured cabinets except in Jarash, Abu-Obaidah, and Princess Iman hospitals.
- ▲ Controlled drugs are not stored in separate areas in Rahma and Tutanji hospitals.
- ▲ There is a night-duty stock of medications in all hospitals surveyed. However, these are operated by technicians without direct supervision of pharmacists since there is no formal on-call pharmacist coverage after hours.
- ▲ All pharmacy premises, fixtures, and equipment are maintained in clean and orderly operating conditions

Drug information

- ▲ There was a general lack of journals and reference materials (books or electronic, e.g., Internet) at the hospitals. Some reference books were available but they were outdated, insufficient, and personally owned by the staff.
- ▲ Princess Raya, Al-Hussein, Al-Karak, Ghor Al-Safi, Mu'ath Bin Jabal, Al-Mafraq (gynecology and pediatric), and Ma'an pharmacies reported the lack of copies of the NDFL or the NEDL.
- ▲ Most HPDs lacked access to basic training aids (e.g., overhead projectors, teaching boards).
- ▲ Pharmacists do not have enough time or training to provide effective patient education and counseling. There is also no suitable space for counseling of patients.

Safety and security

- ▲ Pharmacy records, ledgers, vouchers, prescriptions, and prescription extract data sheets were untidily stored at some hospitals surveyed (e.g., at Jarash hospital).
- ▲ HPDs at Princess Basma, Zarka, Abu Obaidah, Al-Shuneh, Al-Eman, and Princess Iman lack any kind of fire alarms and anti-fire equipment.
- ▲ Pharmacy keys are kept by pharmacy personnel; narcotics cabinet keys are kept by a nominated pharmacist at each hospital.
- ▲ All pharmacies are operated by pharmacists, who are accountable for stock safety, drug validity, inventory control, drug supply records, and drug availability.
- ▲ Inpatient and outpatient pharmacies are regularly checked and inspected by the HPD, except in Jarash, Abu Obaidah, Al-Yarmouk, Al-Eman, and Princess Iman hospitals.

- ▲ Adequate and suitable space is available at ward nursing stations except in Al-Hussein, Al-Eman, Al-Rwaished, Al-Yarmouk, and Princess Iman hospitals
- ▲ The ward medication stocks are regularly checked and inspected by authorized pharmacists. However, large stock quantities and mixed batches of different expiration dates of drugs were found at most ward stations with no stock-keeping records.
- ▲ Written professional standard operating procedures and practice guidelines for pharmaceutical activities performed were not available in any pharmacy.
- ▲ All drug stocks are properly labeled in dispensaries and stores except in most ward nursing stations, where some essential data (e.g., batch numbers and expiration dates) were not found on the medication labels.

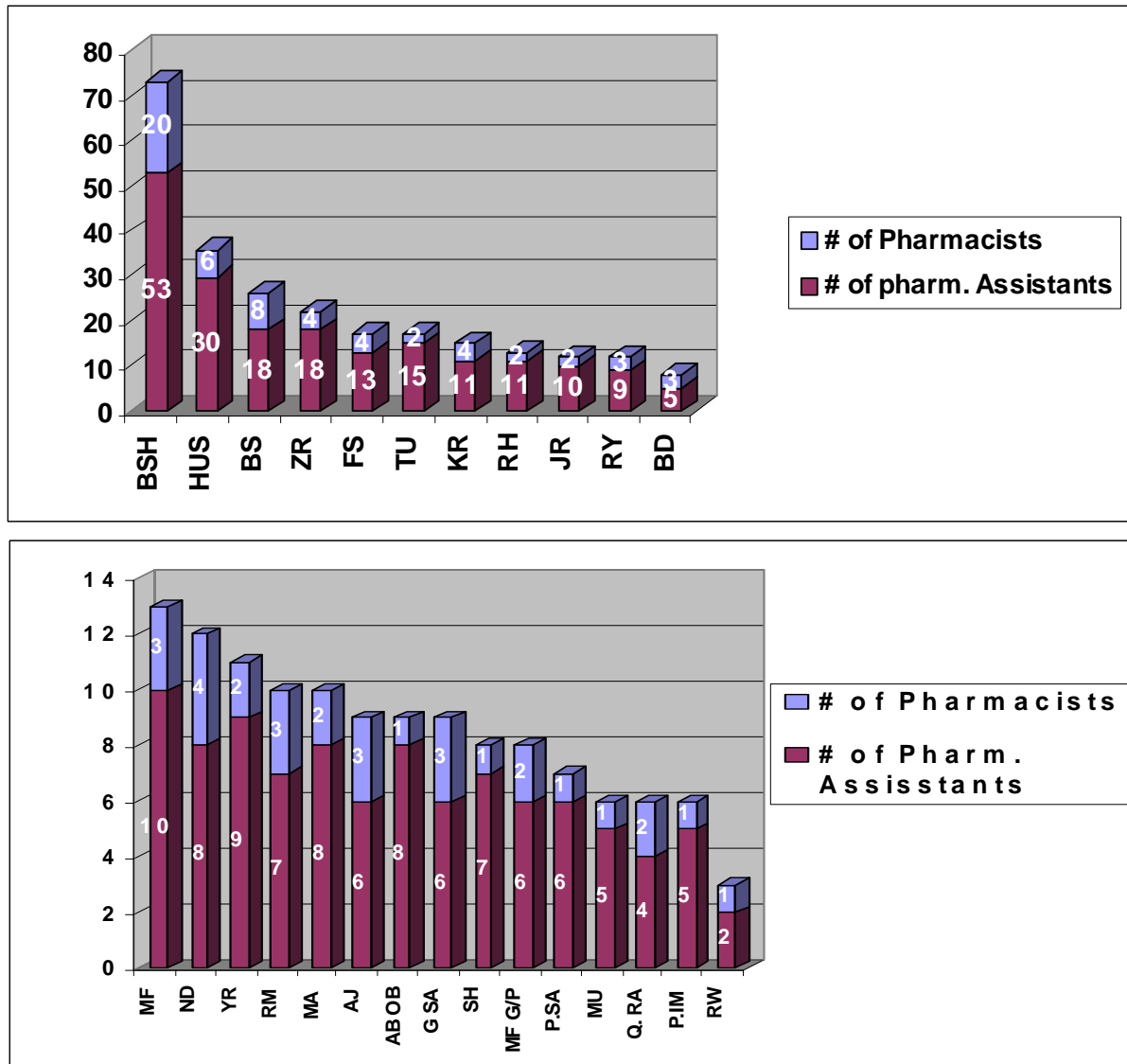
Organization structure and human resources

- ▲ Most HPDs possess no formal organizational structure documents that show the numbers, positions, connections, and levels of authority of pharmacy personnel. Al-Basheer and Al-Hussein hospitals have some charts that show the general structure of the hospital; it was not clear what criteria were used or whether HPD heads were involved in the design of these organizational charts.
- ▲ Written job descriptions for pharmacy staff are not available at most pharmacies, and if available, are not used.
- ▲ HPD personnel are able to perform adequately under normal conditions. However, additional training and more emergency supplies of essential drugs and medical consumables are needed to cope with emergencies.
- ▲ HPD heads are not involved in financial planning for their hospitals, since such activity is performed centrally in the ministry.
- ▲ Some pharmacists participate in drug-related committees in their hospitals.
- ▲ Formal and planned continuous education programs do not exist, with the exception of occasional pharmaceutical training activities at Al-Basheer hospital.
- ▲ Although some pharmacists hold master's degree in clinical pharmacy, they do not practice the specialty in their hospitals. This is primarily due to the fact that the concept of clinical pharmacy services is not yet acknowledged by the MOH.
- ▲ Pharmacy technicians are allowed to dispense medications to patients in all hospitals, without direct supervision of pharmacists.
- ▲ The average ratio of pharmacy technicians to pharmacists in all MOH hospitals exceeds 3:1.
- ▲ All pharmacy personnel use the forms and inventory records and documents assigned by MOH

Workload

No hospital based manpower distribution on patient workload. Patient workload was calculated as the number of occupied patient beds plus the average number of outpatient prescriptions. Figure 1 shows staff distribution (total number of pharmacists and pharmacy technicians) in each MOH hospital. The current assessment revealed that there is no equity, or valid criteria, in the current distribution of pharmacy staff.

Figure 1: Distribution of Pharmacy Staff *



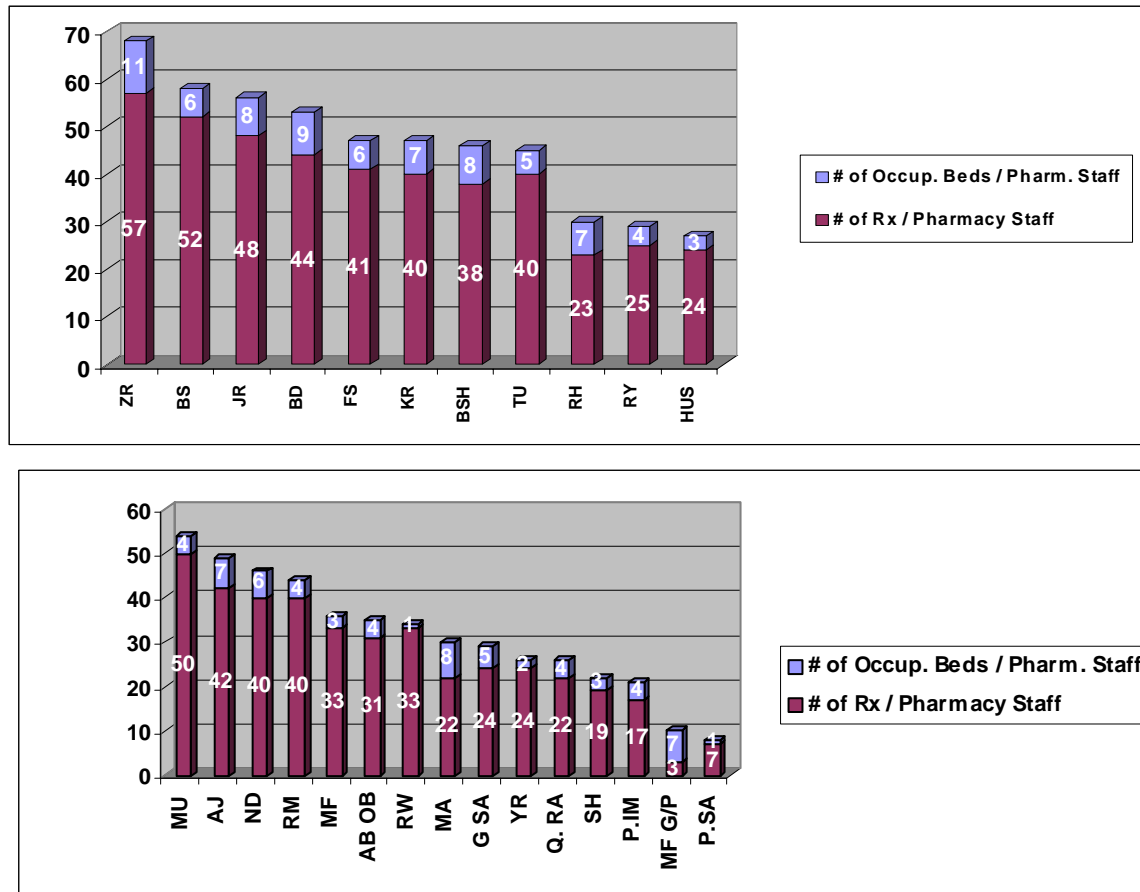
* Pharmacists and technicians

When the average workload at each hospital was calculated (average number of patients served per each pharmacy staff), the under- and overstaffed hospitals were apparent (Figure 2). The results range from eight patients served per pharmacy staff at Princess Salma hospital to 68 at Zarka hospital.

The average number of patients served per pharmacy staff in the 11 hospitals surveyed in the first phase of the assessment was 46, while that of the 15 hospitals in the second phase was 32.

Figure 2: HPD Workload

(In order of average number of occupied beds* (inpatients) and outpatient prescriptions served by each hospital's pharmacy staff)



* Staff per occupied bed is a more accurate and presentable measure of workload than staff per licensed bed or staff per hospital.

A cost-effective HPD staffing requirements study carried out at hospitals in the United States (Bond, Raehl, and Franke, 2000) showed that the most cost-effective distribution of pharmacy staff needed per 100 occupied hospital beds is:

- ▲ 2.01 administrators
- ▲ Not more than 5.11 dispensing pharmacists
- ▲ Not fewer than 1.11 clinical pharmacists
- ▲ Total number of pharmacists = 8.23/100 occupied beds

This assessment found that in Jordan, the average number of pharmacists per 100 occupied beds in MOH hospitals is 3.9 and the average number of technicians per 100 occupied beds is 12.8. (It is worth mentioning that no baseline figures regarding this issue were available before this assessment

was conducted.) All act mostly to manage drug supplies. As noted above – and unlike the U.S. system, which is more computer automated and oriented to patient care – Jordan’s MOH hospital system is: 1) manually operated, 2) dispensers are mainly technicians, 3) no clinical pharmacy is practiced, 4) there is a different pharmacy and supply system, and 5) pharmacists are busy primarily with managerial and supply duties.

Because of the orientation of Jordan’s system, international figures may be considered as a better reference and minimum requirement for Jordan. International figures for the number of pharmacy technicians needed in a hospital pharmacy setting (Management Sciences for Health, 1995) was found to be equal to the number of pharmacists at that setting plus one (i.e. 1:1 + 1).

3.2 Processing and Outcomes

Medication needs, stock, and inventory control

- ▲ Annual requirements of medications and medical supplies are decided centrally according to the quantities that the Main Medical Stores’ (MMS) issues to hospitals. HPDs have no direct involvement in this process. In addition, the medications and medical supplies needs are subjected to reductions by the procurement directorate due to yearly budget limitations.
- ▲ HPDs, on the most part, maintain sufficient stocks to cover monthly needs only. There was no policy for emergency or safety level of stocks.

Pharmacy records and documents

- ▲ All medication and medical supplies documents (forms, vouchers, and ledgers) are standardized by the MOH, and securely kept.

Supply process

- ▲ Medications are dispensed from the MMS according to variable monthly rations. The quantities are decided by the MMS and are not necessarily based on the hospital’s requested needs. Because of this, HPDs tend to request more than is needed in order to get the required quantity.
- ▲ Dispensing is performed mainly by pharmacy technicians. An exception to this is for narcotic medications, which are processed solely by licensed pharmacists.
- ▲ Perishable and heat-sensitive medications are not transported or distributed to hospitals in refrigerated or air-conditioned vehicles, thus threatening drug stability, safety, and integrity.
- ▲ HPDs check the medications issued by MMS upon their arrival to hospitals and match them with their corresponding issue vouchers.

Dispensing

- ▲ Medications are issued to ward nursing stations according to an open nursing request form. In most cases, the assessment found that types and quantities of medications requested are not based on actual physician-ordered patient needs, but in exaggerated quantities.

- ▲ Medications are only dispensed to patients against physicians' formally written prescriptions.
- ▲ Generally, pharmacists do not have enough time, training, and capacity to provide proper professional instructions and counseling to patients.

Monitoring of medication use

- ▲ HPDs in all hospitals lack a comprehensive ongoing practice for detecting, evaluating, monitoring, documenting, and reporting adverse drug reactions (ADRs). The system is available, but needs to be implemented.
- ▲ HPDs have no system to access to patients' medical histories and hence cannot offer advice to avoid ADRs.
- ▲ Highly toxic and risky medications with narrow therapeutic indices are not monitored in most of the hospitals, thus compromising patient safety.

Quality assurance

- ▲ All batches of medications, imported or locally manufactured, are analyzed for conformity with registered specifications by the MOH-owned Quality Control Laboratory (QCL), upon their arrival in the country, or once requested to be marketed. This activity is done according to Medication Analysis Law No. 7 of 1994. However, no further analysis was found to be performed later on during their shelf life, to comply with Article No. 7 of the aforementioned law, to ensure that the medications retain their efficacy and integrity and to evaluate the appropriateness of the storage conditions.

3.3 Drug Utilization Indicators

As noted in Chapter 2, data were collected for the 25 indicator drugs to examine drug utilization. Table 1 lists the indicators examined.

Table 1: Indicators Used to Examine Drug Utilization

Indicator Code	Indicator
3.1	Average no. of drugs prescribed per prescription
3.2	% of drugs prescribed by generic name
3.3	% of drugs prescribed from the NDFL
3.4	% of injections prescribed in outpatient prescriptions
3.5	% of antibiotics prescribed in outpatient prescriptions
3.6	% of drugs dispensed out of the prescribed
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy
3.8	Average % of individual variation for a set of indicator drugs
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs
3.10	Average % of a set unexpired indicator drugs
3.11	Average % of time out of stock for a set indicator drugs

Indicators numbered from 3.1 to 3.5 reflect the prescribing practices and behavior of the prescribing physicians; indicators 3.6 to 3.11 reflect the inventory status at each hospital. The results of the drug utilization survey are presented in Table 2.

Table 2: Results of Drug Utilization Indicators at MOH Hospitals

Indicator	3.1 Average of drugs / Rx	3.2 Average % of drugs prescribed in generic names	3.3 % of drugs prescribed from NDFL	3.4 % of out- patients prescribed injection	3.5 % of out- patients prescribed antibiotics	3.6 Average % of drugs actually dispen-sed	3.7 Weighted average % of variation	3.8 Average % of individual variation	3.9 Average % of stock correspon- dence	3.10 Average % of un- expired drugs	3.11 Average % of time out of stock
Hospital											
AB OB	2.65	12	90	6	49	97	0.07	1.3	40	100	4
AJ	2.3	9.2	84	5	45	97	1.39	3.9	20	100	6.6
BD	2.18	23	90.4	3	60	99.5	0.56	0.22	80	100	1.03
BS	2.77	18.8	70	4	30	98.2	0.08	0.42	36	100	12.6
BSH	2.88	18.75	76	1	26	98.6	0.05	1.4	44	100	6
FS	2.77	9.75	78	0	48	94	0.006	0.03	52	100	2.36
G.SA	1.9	3.2	95	3	47	100	0.26	1.6	20	100	2.8
HUS	2.74	14.6	78.8	5	38	96.7	0.17	1.43	32	100	9.5
JR	2.32	7.8	93	8	57	94	0.4	26.3	8	100	5.6
KR	2.18	8	79	4	37	96	0.03	0.37	80	100	4.13
MA	2.1	12	77	3	43	98	0.12	0.53	32	100	3.4
MF	2.5	17	78	2	41	96	1.9	1.4	36	100	4.2
MF G/	2.2	7.3	91.8	0	69	98	1.5	1.1	44	100	2.7
MU	2.27	7.9	86.8	1	54	98.2	0.02	0.06	52	100	6.8
ND	1.8	10.4	83	0	18	94.5	0.64	2.6	24	100	7.2
P.IM	2.5	16	87	4	35	97	0.37	0.88	28	100	12.8
P.SL	2.37	12.7	86.5	4	52	95	1.83	0.57	28	100	5.9
Q.RN	2.4	11	78	4	54	96	0.3	1.3	52	100	6.5
RH	2.27	12	85	0	64	96	0.005	1.17	36	100	8
RM	2.3	9.8	84	2	47	93	0.9	8.04	20	100	6.8
RW	2.74	4	86	7	67	99	0.08	0.16	60	100	10
RY	2.13	14.55	82	4	36	99.5	0.02	0.21	48	100	4.7
SH	2.42	10.7	80.5	3	49	99.6	0.26	0.9	32	100	10
TU	2.75	15	68	4	35	99.3	0.12	0.49	16	100	2.97
YR	2.2	18	81	1	55	96	0.44	0.92	40	100	7
ZR	2.54	11.5	79	4	34	96	0.2	1.24	38	100	5
Aver-age	2.39	12	82.6	3.15	45.77	97	0.45	2.25	38.38	100	6.1

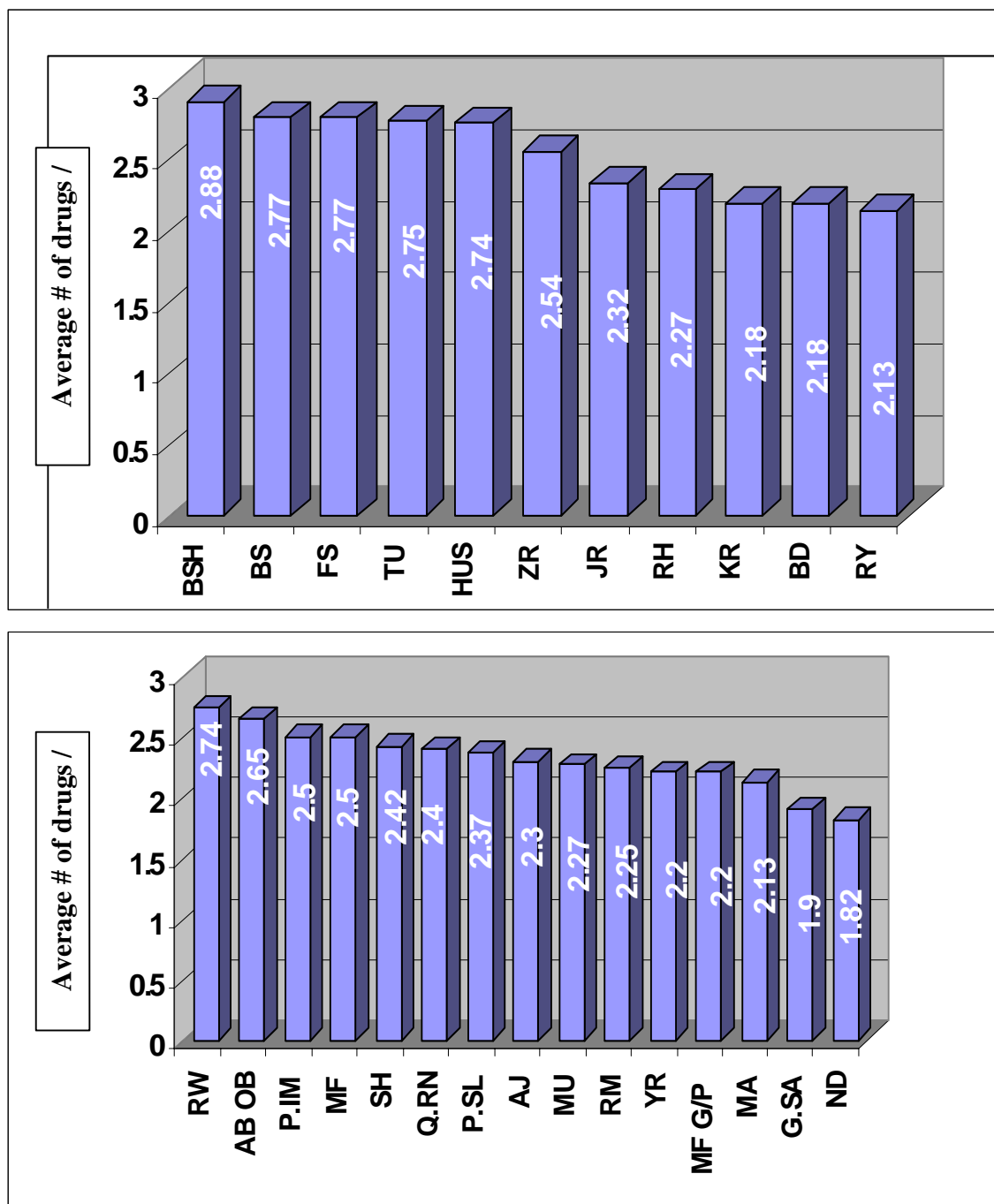
3.4 Strengths and Weaknesses of Pharmacy Practices

Strengths and weaknesses were identified in the HPDs of the 26 MOH hospitals surveyed. This section discusses each. Where appropriate, they are measured against international values (all values from Management Sciences for Health, 1995).

Strengths

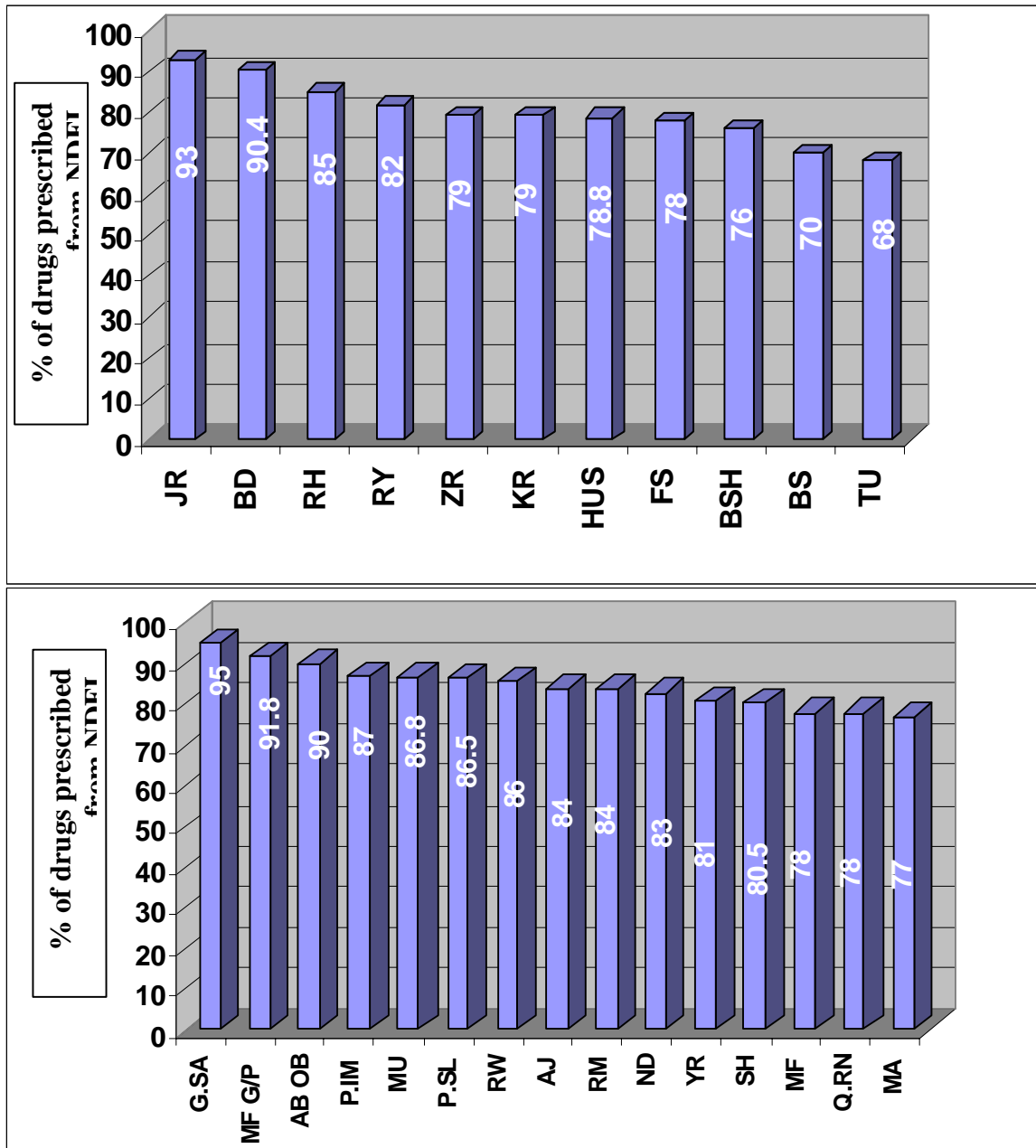
- ▲ All HPDs strictly adhere to MOH regulations and instructions regarding narcotics.
- ▲ All records and forms used to perform HPD work are standardized and designed centrally by the MOH.
- ▲ Pharmacy staff are enthusiastic and supportive of any program that will enhance their performance and build their capacity.
- ▲ There is good control on expensive drugs at some hospitals.
- ▲ The average number of medications per prescription in all MOH hospitals was 2.4. This figure is moderate and within the international value 3. Figure 3 illustrates this finding.

Figure 3: The Average Number of Medications Prescribed per Outpatient Prescription



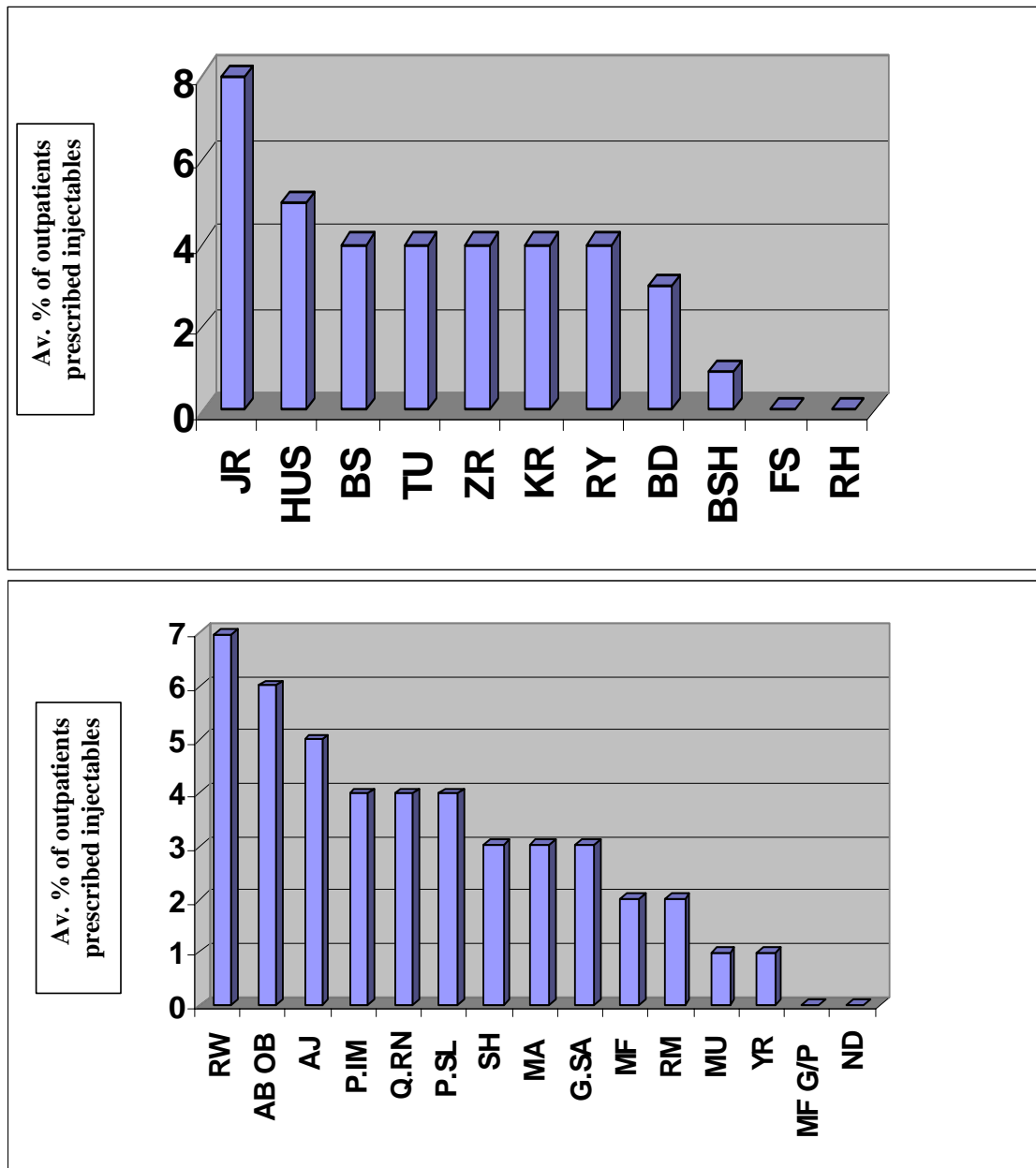
- ▲ The average percent of medications prescribed from the NDFL was 82 percent, relatively high compared with 73 percent in international findings (Figure 4).

Figure 4: Average Percent of Drugs Prescribed from the NDFL



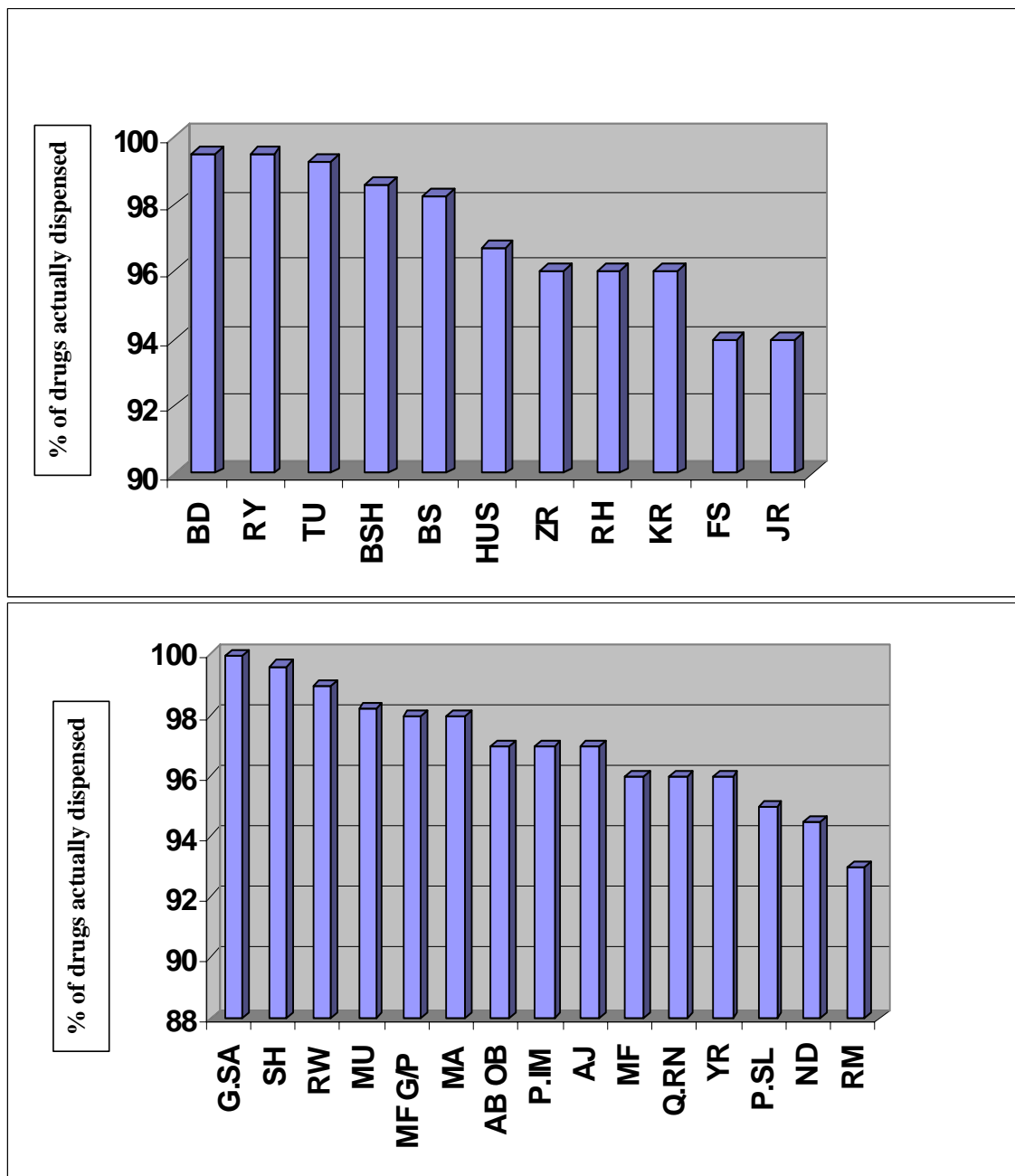
- ▲ The average percent of injectables in outpatient prescriptions was 3.2 percent (Figure 5), very low compared to 20 percent in the international literature. This reflects a rational practice, since a low rate of injectables prescribed to outpatients reflects a good practice.

Figure 5: Average Percent of Outpatients Prescribed Injectables



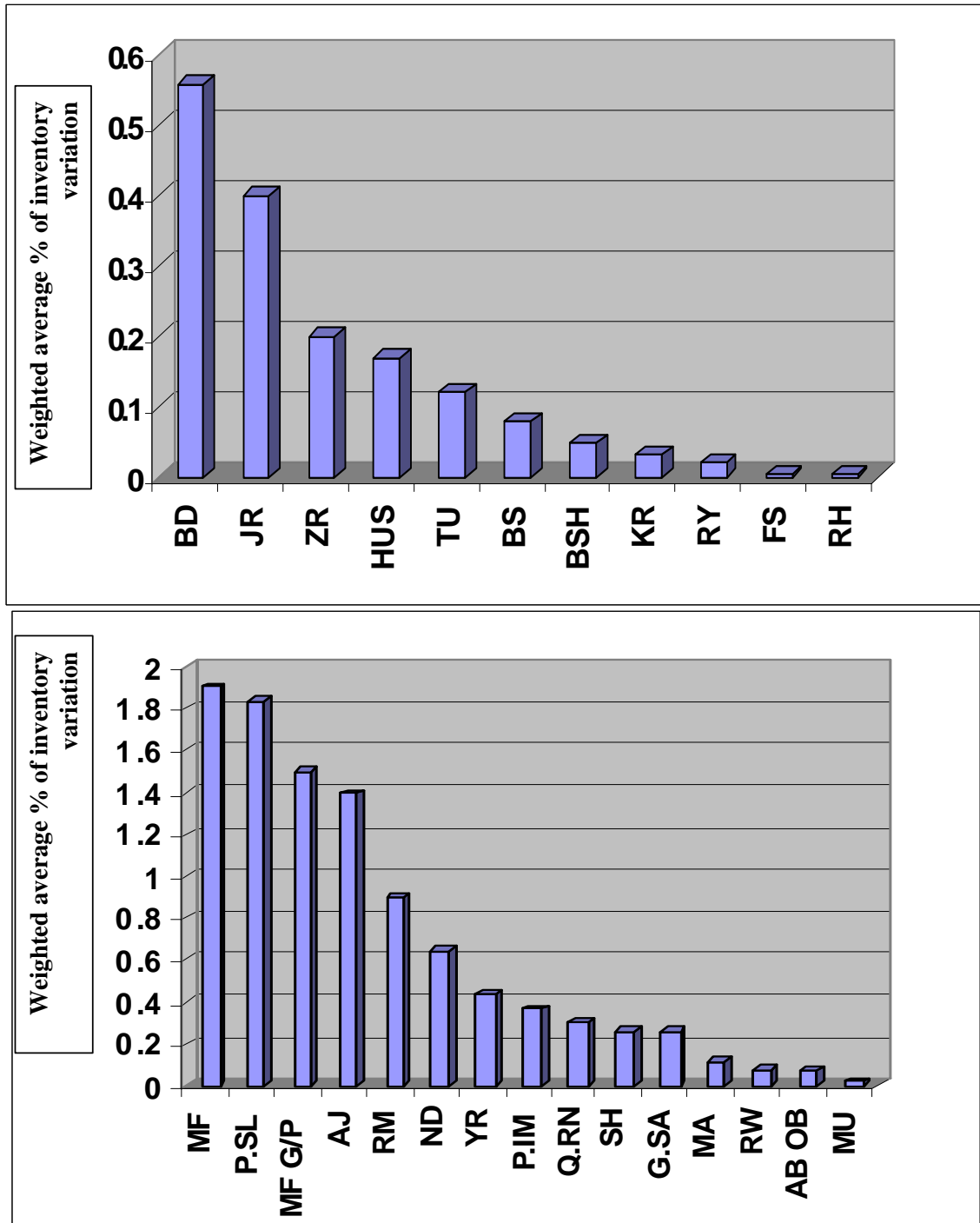
- ▲ The availability of essential medications, at the time of study, is excellent: 97 percent of medications prescribed are dispensed (Figure 6). This compares favorably with the international values (73 percent).

Figure 6: Average Percent of Prescribed Drugs Actually Dispensed



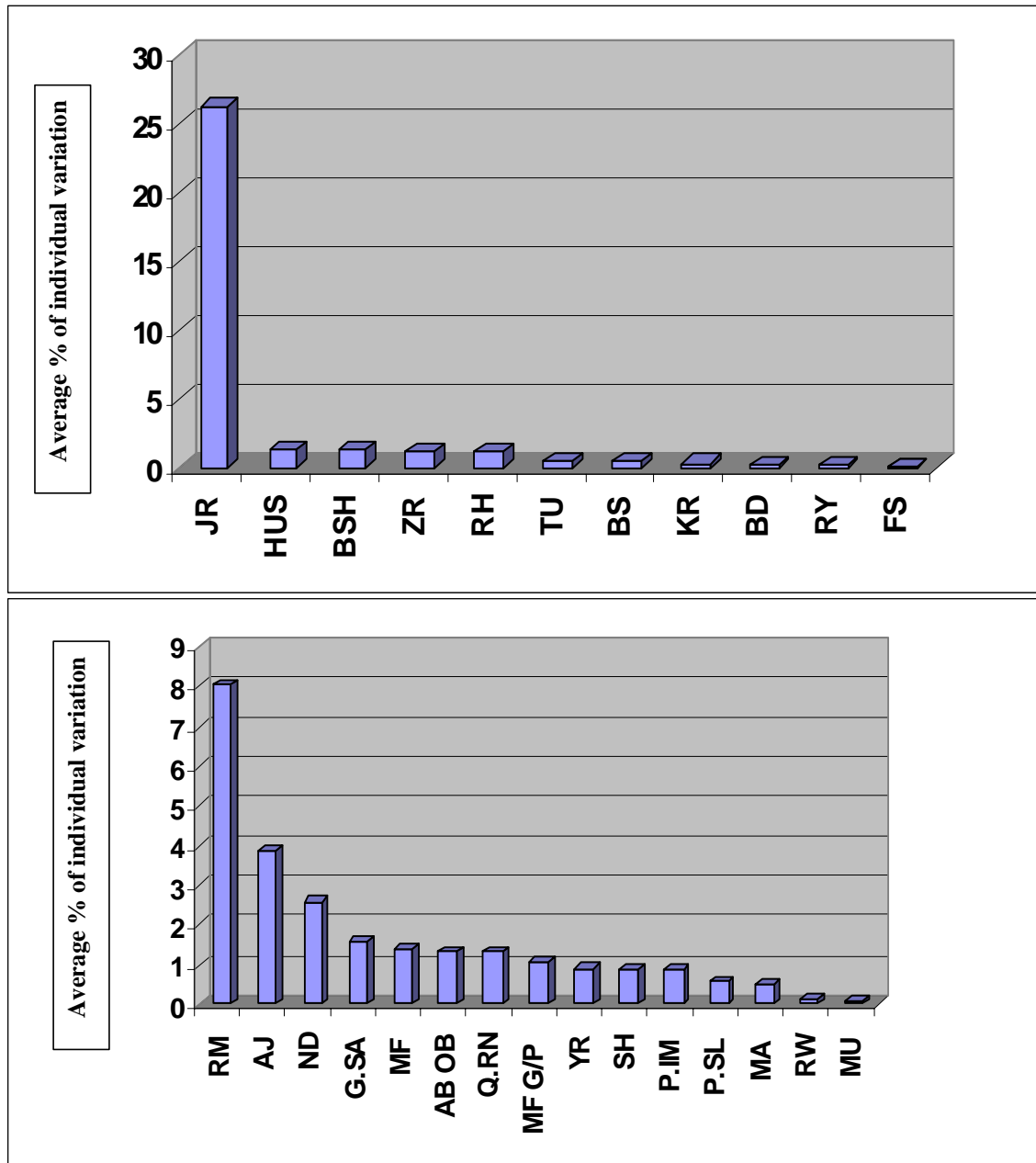
- ▲ The average percent of total variation between stock records and physical counts for the indicator drugs was found to be 0.5 percent (Figure 7), compared to the published international variation of 21 percent.

Figure 7: Weighted Average Percent of Inventory Variation for a Set of Indicator Drugs



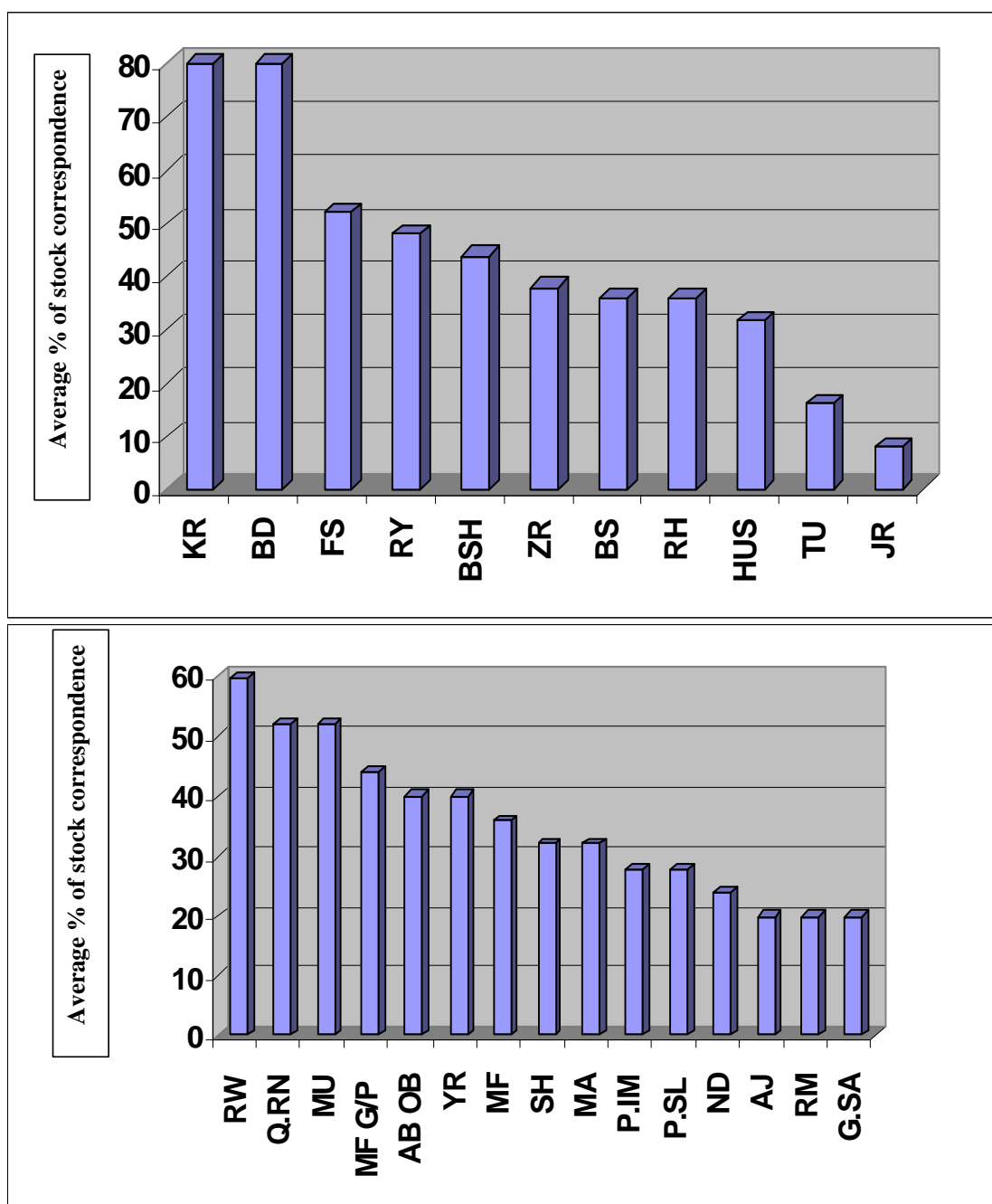
- ▲ The average percent of individual variation between stock records and physical count was found 2.4 percent (Figure 8), a very satisfactory result compared with 31.3 percent published internationally.

Figure 8: Average Percent of Individual Variation for a Set of Indicator Drugs



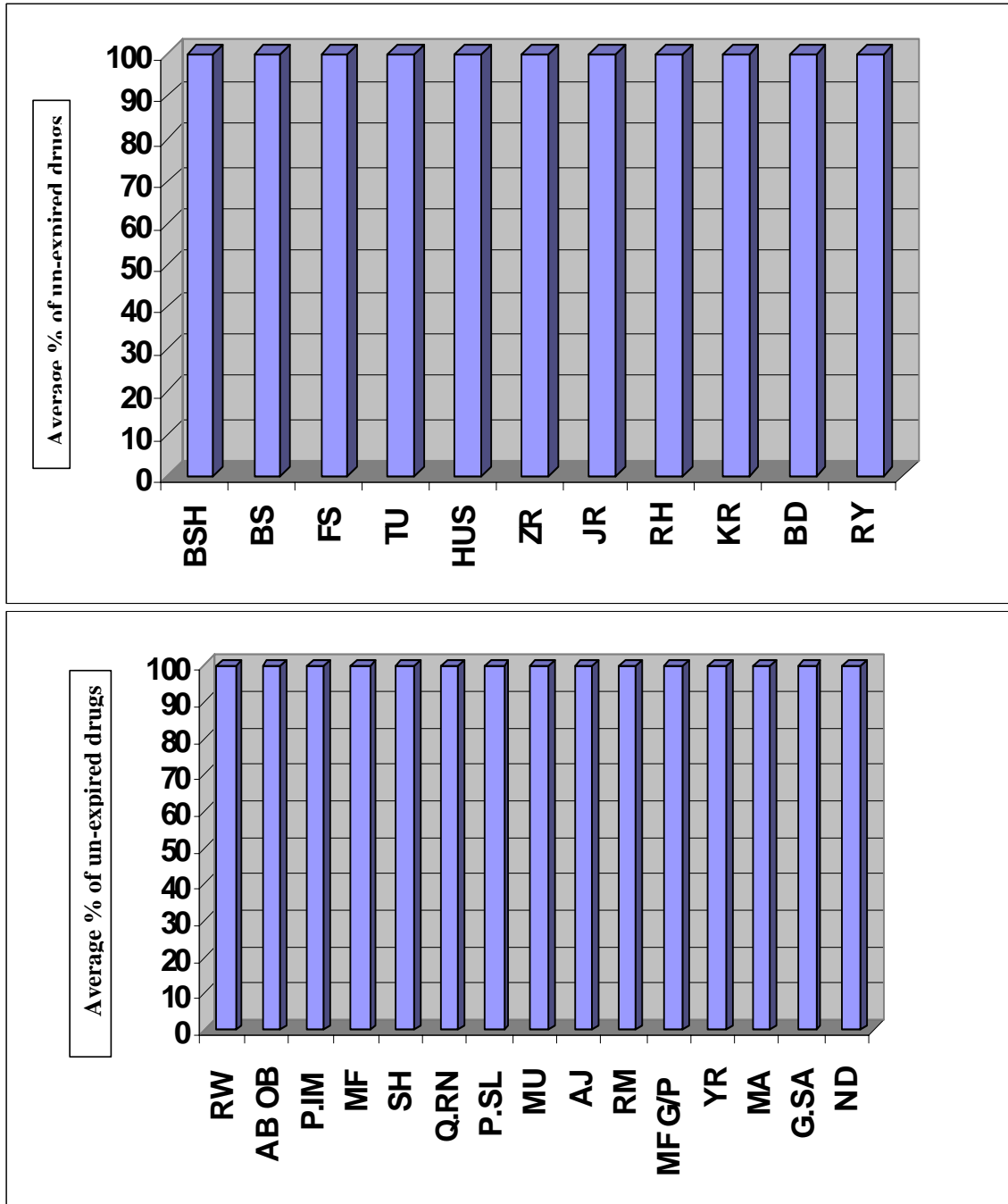
- ▲ The exact correspondence between the stock records and physical count is acceptable (average 38 percent) (Figure 9), compared with 30 percent in international results.

Figure 9: Average Percent of Stock Records that Corresponds with Physical Counts for a Set of Indicator Drugs



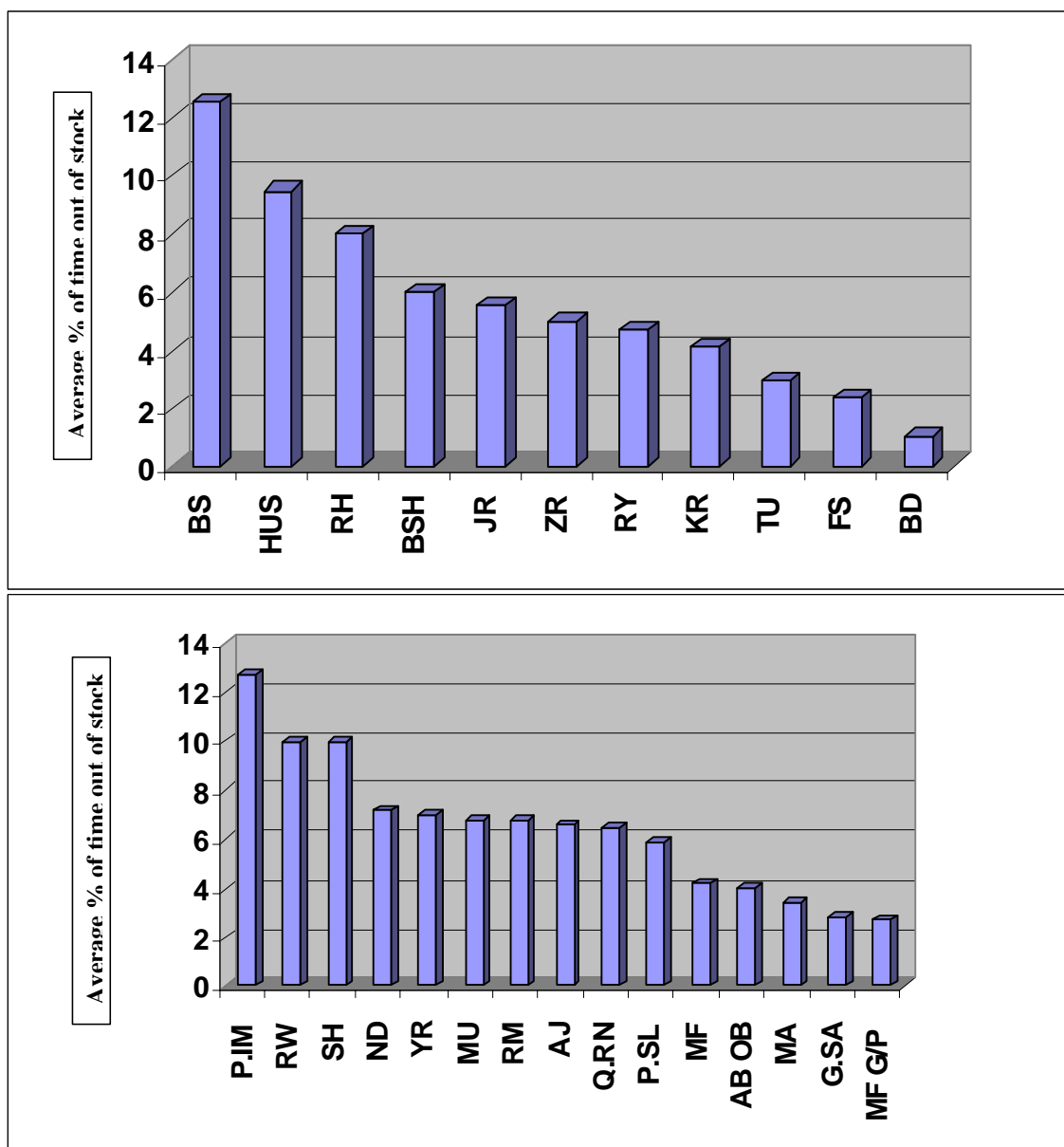
- ▲ The average percent of unexpired medications available at HPDs is 100 percent (Figure 10). This value is excellent compared to 48 percent internationally.

Figure10: Average Percent of a Set of Unexpired Indicator Drugs



- ▲ The average percent of time out of stock for the indicator drugs over a 12-month period was 6 percent (at the time of survey) (Figure 11). The average percent of time out of stock values internationally was found to be 20 percent.

Figure 11: Average Percent of Time Out of Stock for a Set of Indicator Drugs

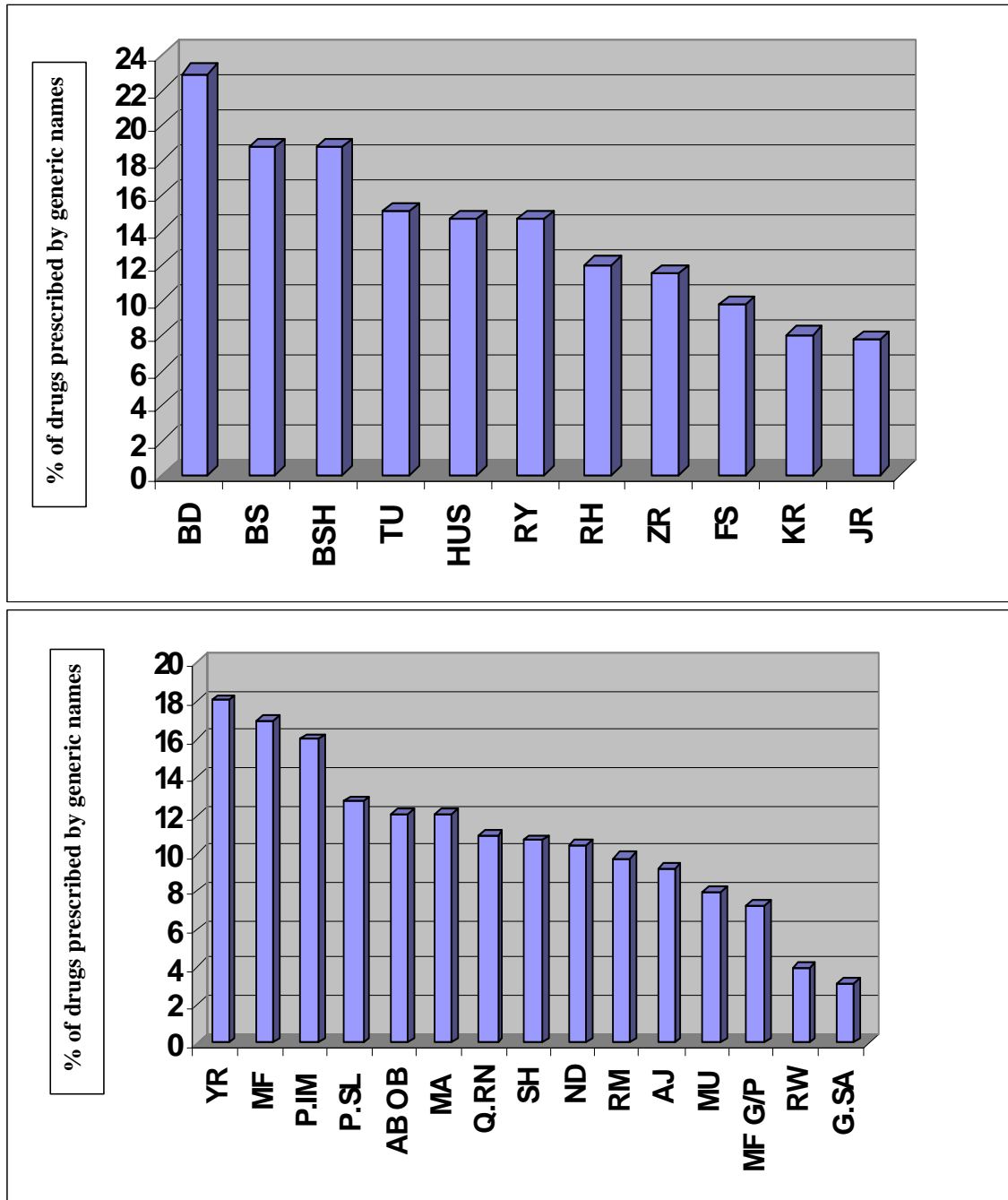


Weaknesses

- ▲ Delegation of the dispensing responsibilities of pharmacists to pharmacy technicians conflicts with the Pharmacy and Medications Temporary Law No.80 of 2001, and its modification No. 30 of 2003.
- ▲ Distribution of pharmacy staff is disproportionate to the workload of each hospital.
- ▲ Pharmaceutical patient care is not satisfactory due to the absence of clinical pharmacy services.
- ▲ Proper drug information reference materials is lacking and training opportunities are limited.
- ▲ Lack of proper fire alarm systems and inadequate anti-fire system.
- ▲ An organization structure chart and staff job descriptions is absent in the majority of HPDs.
- ▲ The ADR monitoring and reporting system is inactive.
- ▲ Drug quantities are not estimated according to the actual hospital needs and standard procedures. Additionally, these estimates are processed centrally, without direct involvement or active contribution of the hospital pharmacists.
- ▲ No emergency stock policy of essential medications was found in any hospital surveyed.
- ▲ There is no active policy-recommending body, such as PTCs.
- ▲ Some hospitals have improper stock-recording practices (disorganized records, mixing the recorded stock of different items).

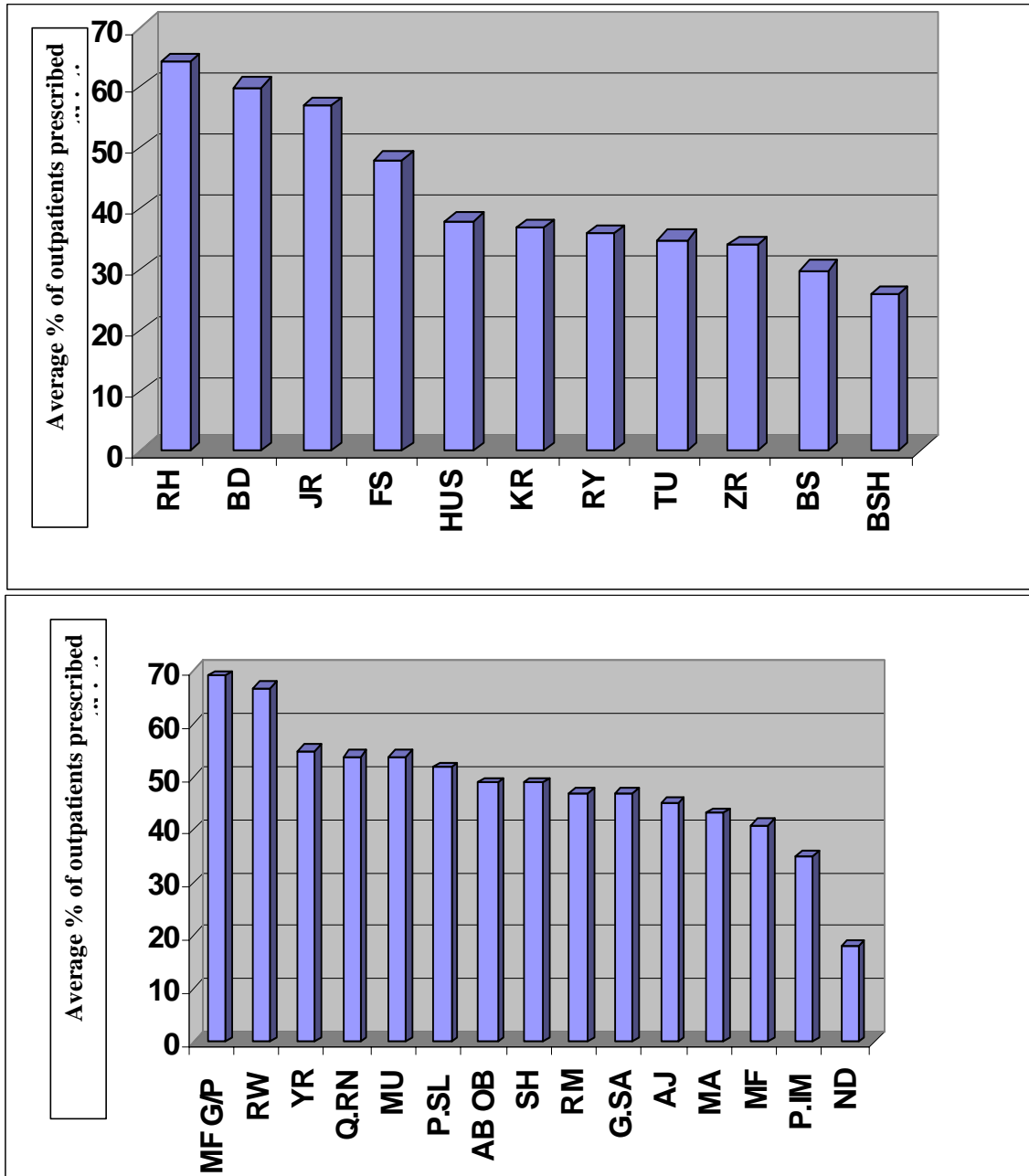
- ▲ Prescribing medications by generic names is very low (average 12 percent) (Figure 12). compared with 36 percent internationally.

Figure 12: Average Percent of Drugs Prescribed by Generic Name



- ▲ The average percent of antibiotics prescribed for outpatients is high (46 percent) (Figure 13) compared with 17 percent internationally.

Figure 13: Percent of Outpatients Prescribed Antibiotics



4. Analysis and Discussion

4.1 Structure

Premises/pharmaceutical preparation area

All 26 HPDs surveyed lack pharmaceutical preparation areas except Al-Basheer hospital, which possesses a dermatological preparation area. This would be useful for not only dermatological preparations but also for compounding intravenous admixtures and parenteral drugs and nutritional additives, which is currently done by nurses.

Drug information

The provision of medication-related information by pharmacists to colleagues, other health care professionals, and patients is necessary to optimize therapeutic outcomes.

All hospitals surveyed lacked reference materials such as journals, references books, and electronic sources of information like the Internet. The reference books currently available to most HPDs were outdated, owned by the pharmacists themselves, and rarely used. Pharmacists depend on drug brochures and their personal experience to guide them.

Lack of access to up-to-date information and programmed training opportunities for pharmacy staff is a major technical and professional challenge that compromises the quality and integrity of pharmaceutical care that should be provided to patients.

Safety, security, and alarm systems

Safety measures are not as good as they should be at all MOH hospitals. Some pharmacies reported a lack of fire alarms and fire-fighting equipment. In addition, where equipment is available, the types, quantities, and distribution are not optimal and few staff are trained in its usage. This highly important safety requirement could be met by drafting safety standards and guidelines and defining the requirements in coordination with Civil Defense Directorate in each governorate. However, in the meantime, the distribution of the existing extinguishers and training of staff on their usage are simple tasks that could be accomplished at the hospital level.

Organization structure and human resources

All HPDs surveyed, except Al-Basheer hospital, lack a departmental organization chart and job descriptions for the pharmacy staff. The absence of job descriptions has led to vague lines of authority and accountability, and undefined responsibilities. The job descriptions designed by *PHRplus* for all pharmacy personnel, which clearly delineate professional and technical functions, duties, and reporting mechanisms and responsibilities, should be implemented.

Clinical pharmacy services

The primary goal of clinical pharmacy services is to provide safe, efficacious, accurate, and cost-effective pharmacotherapeutic treatment of patients. MOH hospital pharmacy services are still mainly restricted to the traditional roles of drug supply activities, rather than this pharmacotherapy. In addition, the pharmacy and medical supply systems in MOH hospitals are manually operated, resulting in overworked staffs. This situation undermines the functioning of the delivery of a major aspect of pharmacy practice, and needs urgent and well-planned reform.

The value of clinical pharmacy was demonstrated in the United States, where hospitals achieved very cost-effective service delivery; every U.S dollar spent on clinical pharmacy practice resulted in a cost reduction (benefit) that ranged from \$4 (Schumock, Butler, Meek et al., 2003) to \$16.7 (Bond, Raehl, and Franke, 2000).

Through clinical pharmacy services, pharmacists promote rational drug therapy. Improved drug therapy should have a profound impact on the quality and total cost of care by decreasing medication errors, lengths of hospital stays, adverse drug reactions, and infection rates.

Participation in financial planning

No HPD head contributes to financial planning for the provision of pharmacy services, as this is a centralized decision and none of them are trained to do this work. Nevertheless, they should participate in this activity in order to assist in resource allocation and better estimation of departmental financial requirements.

Roles of pharmacist and technicians

Dispensing medications in MOH hospitals is done in most cases by pharmacy technicians, while pharmacists manage the activities related to narcotics. Pharmacists also oversee the administrative functions – paperwork related to medications, medical supplies, inventory, and medication-related revenues. The Jordanian Pharmacy and Medication law No. 80 of 2001, and its modification No. 30 of 2003, second chapter, Article 19, states that “The practice of the pharmacy profession does not become permissible except to the pharmacist according to the judgment of this law.” Thus, tasks as currently carried out clearly violates the law, and could compromise the delivery of quality pharmaceutical care to patients. That noted, this situation may result from the absence of written job descriptions that clearly delineate the professional roles, duties, and responsibilities of each party, as discussed earlier in this report.

The Jordanian Royal Medical Services (RMS) addressed this situation by initiating two lines of pharmaceutical services, namely, clinical pharmacy services and supply-related activities. Each has been supported by a formal residency training program since 1997.

The average number of pharmacists per 100 occupied beds in all MOH hospitals was found to be 3.9, far less than the international average of 8.23 (Bond, Raehl, and Franke, 2000). The average number of technicians to pharmacists in MOH hospitals surveyed is more than 3:1 and exceeds the international ratio of 1:1+1 (Management Sciences for Health, 1995).

Thus, it seems that the health system recruits pharmacy technicians in larger numbers than pharmacists, as the former are paid less, yet they can carry out many duties for which pharmacists are not available. Yet doing this gives to technicians authority and responsibility that are disproportionate to their level of training. Rectifying this situation needs a well-designed reform plan, giving priority

to the implementation and activation of the law, job descriptions, organization structures, and evidence-based workload manpower distribution.

All hospitals reported the absence of an active policy-recommending body such as pharmacy and therapeutic committees.

4.2 Processing and Outcomes

Quantification of medications needs

Determining quantities of medications needed is processed centrally by the MOH Directorate of Supply, which uses Main Medical Stores data to do quantifications. This crucial supply step is processed without active involvement and contribution of hospital pharmacists. Thus, the quantities that the MMS supplies to MOH hospitals are not based on valid workload criteria. This leads to medication needs being either overestimated, resulting in surpluses and expiration of unconsumed medicines, or underestimated, resulting in shortages. This malpractice wastes scarce drug resources, compromises the quality of pharmaceutical services delivered to patients, and threatens the sustainability of medication availability. Overall budgetary constraints and diversity in physicians' prescribing behaviors exacerbate these problems.

Distribution of medical supplies to inpatients

The assessment revealed that, while there are good controls over medication supply until they are delivered to hospitals, poor control is evident. Most hospitals do not have an internal system to monitor or control well the distribution of medications to inpatients. This is because most medication request lists done by ward in-charge nurses are not based on the physician orders according to patients' medical records or cardex system. This results in overstocks of unordered medications, leading to misuse.

The most convenient and rational system for hospitals is the Unit-Dose System (UDS). The UDS delivers to the ward on a daily basis the exact patient medication requirements for a 24-hour period, as based on physicians' orders. The advantages of the UDS are complying with physicians' directives, providing a precise, fresh supply of the ordered medications, and reducing drug wastage.

4.3 Drug Utilization Indicators

Average number of medications prescribed per prescription

This indicator attempts to describe prescribing behavior of physicians. Too high, or too low, an average number of prescribed medications can indicate poor prescribing practices. This can be due to lack of prescribers' pharmaceutical information and education or by frequent medication stocks-outs, which forces physicians to prescribe from what is available.

This indicator is computed by dividing the total numbers of medications prescribed, over the total number of outpatients' prescriptions.

In this survey, the average number of medications prescribed per curable encounter was 2.4, which is moderate compared with the international average of three.¹

Percent of generic drugs prescribed

Prescribing generic medications is a key measure to control drug costs, provided that the generic providers or manufacturers are properly selected, on the basis of quality and good manufacturing practices.

In addition, prescribing generic medications throughout the health care system practices would increase transparency in procurement and competition between manufacturers. It would also decrease the number of drugs in the NDFL/NEDL and contribute to compliance with the National Drug Policy (NDP). It minimizes medication errors related to substitution of one brand-name drug for another in cases of inventory shortages.

This indicator is computed by dividing the total number of drugs prescribed by their generic names multiplied by 100 percent, over the total number of all drugs prescribed.

The survey found 12 percent of drugs prescribed were generic, which is very low in comparison with 36 percent internationally.

Percent of drugs prescribed from the NDFL

Well-managed pharmaceutical systems train health care providers to limit prescribing to drugs on the NDFL/NEDL. Compliance with this is an essential part of cost control and promotes adherence to NDP. This indicator provides a measure of the extent to which this objective is achieved.

The indicator is computed by dividing the total number of drugs prescribed from the NDFL/NEDL multiplied by 100 percent and divided by total number of drugs prescribed.

The survey result for this indicator was 82.6 percent, good in comparison with 73 percent found internationally.

Percent of injections prescribed in outpatient prescription

Injections are essential for some cases, but overuse, which is common, wastes scarce resources and could expose patients to risks of ADR and disease. Both of these problems are less likely with oral therapies.

This indicator is computed by dividing the total number of outpatient prescriptions containing injectables multiplied by 100 percent, and divided by the total number of prescriptions.

The survey result was found to be 3.2 percent, which is very low in comparison with 20 percent internationally. This reflects a rational prescribing practice of injectables in MOH hospitals.

¹ This and subsequent references in section 4.3 are from Management Sciences for Health, 1995.

Percent of antibiotics prescribed in outpatient prescription

Antibiotics are costly therapeutics and are frequently overused due largely to indiscriminate and unjustified prescribing practices. Antibiotic overuse and misuse results in microbial resistance, exposes patients to risks of ADRs and diseases, and renders some formerly useful drugs ineffective. This is especially serious when national capacity for laboratory monitoring of antimicrobial sensitivity is limited or nonexistent.

This indicator is computed by dividing the total number of outpatient prescriptions containing antibiotics multiplied by 100 percent, and divided by the total number of prescriptions.

The survey result of this indicator was 46 percent, which is a very high compared to the published international value of 17 percent, and it has a very negative impact on patients' health, microbial flora, and overall health status and expenditure.

Percent of prescribed drugs actually dispensed

This indicator reflects the availability of drugs and measures the efficiency of the HPDs in MOH hospitals to meet the medication needs in their settings.

The indicator is computed by dividing the total number of medications actually dispensed multiplied by 100 percent, and divided by the total number of medications prescribed.

The survey results showed that the availability of medications at the time of the assessment was excellent: 97 percent of the prescribed drugs were actually dispensed. This compares favorably with the international average of 73 percent drug availability.

Weighted average percent of total inventory variation for a set of indicator drugs in the pharmacy

Inaccurate drug-stock record-keeping systems are of limited use for monitoring current inventory, estimating future needs, and controlling usage of pharmaceuticals. This indicator measures the degree to which systems accurately record the real status of drugs in stock.

This indicator is computed by subtracting the total value of the physical count from the total value of the recorded amount of all indicator drugs, in absolute values, multiplied by 100 percent, and divided by the total value of physical count.

The survey result was 0.5 percent, which is far superior to the 21 percent found in international average.

Average percent of individual variation for a set of indicator drugs

Average percent of individual variation measures the degree to which inventory record-keeping systems reflect the real status of drugs in stock. As a measure, it indicates the magnitude of discrepancy between records and the real stock levels of each individual indicator drug.

This indicator is computed by subtracting the physical count value of each indicator drug from its recorded value, multiplied by 100 percent, and dividing the resulted value by the records count. Then, the total result values for all indicator drugs are summed and divided by the number of indicator drugs, to obtain the average.

The survey result of this indicator was 2.3 percent, which is very good when compared with the international average of 31.3 percent.

Average percent of stock records that corresponds with physical counts for a set of indicator drugs

The average percentage of stock records that corresponds with physical count of drugs is useful for clarifying the quality of the inventory record-keeping system in cases where average variations and variance are skewed by a small number of items. It reflects the degree of exact correspondence and accuracy between the recorded values and the physical counts for the indicator drugs.

This indicator is computed by calculating the number of stock records that correspond exactly with the physical count for the set of indicator drugs, multiplied by 100 percent and divided by the total number of records examined.

The survey result of this indicator was 38.4 percent exact correspondence, which is better than the international value of 30 percent.

Average percent of unexpired indicator drugs

This indicator measures the efficiency and accuracy of the medication supply system, and indicates the degree of proper utilization of drug resources by not allowing drugs to expire on the shelves. The ultimate effectiveness of HPDs in fulfilling this basic mission is the proper provision of valid drugs at health facilities with minimal wastage.

This indicator is computed by calculating the number of indicator drugs with unexpired stock, multiplied by 100 percent, and dividing the result by the total number of indicator drugs (i.e., 25 in this survey).

The survey result of this indicator was 100 percent of indicator drug validity in the pharmacies and storage sites at the time of assessment. This is an excellent finding if sustained and maintained. The international value for this indicator was 48 percent.

Average percent of time out of stock for a set of indicator drugs

The percent of time out of stock shows the percent of days during a 12-month period that there are stock-outs of indicator drugs. It measures the capacity of HPDs to maintain a constant and sustainable availability of medications to cover the patients' needs throughout the year.

This indicator is computed by calculating the total number of stock-out days for all indicator drugs during a year, multiplied by 100 percent, and dividing the result by 365 days multiplied by the total number of indicator drugs.

The survey result of this indicator was 6 percent, which very good compared with 20 percent internationally.

5. Recommendations

Pharmacy premises and storage require the following:

- ▲ A comprehensive engineering master plan, prepared after a thorough assessment of all pharmacy premises and storage facilities. This should be implemented with the direct involvement of hospital directors and HPD heads.
- ▲ Proper pharmaceuticals preparation areas
- ▲ Controlling and monitoring of storage conditions (temperature, ventilation, humidity, sanitation, and hazards), with appropriate documentation.
- ▲ Periodic calibration system for all cooling equipment with documentation.
- ▲ Safer storage cabinets for narcotic drugs in Jarash hospital.
- ▲ Training staff on good storage and record-keeping practices

Drug information:

- ▲ Each hospital should have proper pharmaceutical information references.
- ▲ There is need for effective dissemination of the NDFL to all health professionals.
- ▲ There should be pharmacists who are well-trained in clinical pharmacy in each hospital to provide pharmaceutical care and information.

Safety and security:

- ▲ There is need for an adequate number of fire alarms and extinguishers. All staff should be trained on their usage in coordination with Civil Defense Directorates of each governorate.
- ▲ All storage sites and pharmacy outlets should have proper security measures and protection.
- ▲ There should be a system for the control and proper handling of pharmacy keys.

Personnel improvements can be achieved through:

- ▲ Pharmacists' recruiting plan with proper selection and fair distribution criteria.
- ▲ Training plan for pharmacists and technicians with technical-grading and professional performance assessment system coupled with incentives, similar to the system applied in the Royal Medical Services.

- ▲ Introduction and implementation of clinical pharmacy practice and pharmaceutical care concepts.
- ▲ Review of HPD organization structures to comply with duties and workload at each hospital.

Professional activities could be enhanced through the following:

- ▲ Establishment of effectively functioning pharmacy and therapeutic committees in each hospital.
- ▲ A system to rationalize and control antibiotic use, including the development of antibiotic control subcommittees
- ▲ The development of standard operating procedures for all aspects of pharmacy professionals' practices.
- ▲ Training health professionals to adopt and effectively use the NDFL in their practices.
- ▲ Training of all health professionals on prescribing generic drugs.
- ▲ Making available suitable and continuously updated drug information references at each hospital.

Inventory management:

- ▲ A proper, evidence-based, drug quantification system should be established and ensure the direct contribution and involvement of hospital pharmacists.
- ▲ To prevent misuse of drugs, there should be a system for proper distribution and control of medications in the hospital wards/nursing stations and any other points of use of medications, e.g., operating theatres, emergency rooms, and intensive care units.
- ▲ To enhance control over the use of drugs in the wards, a Unit-Dose System for inpatients should be implemented.
- ▲ There is need for a system to monitor and control the expiration dates of medications
- ▲ There should be a pharmacist on call after duty hours to provide 24-hour pharmacy service coverage.
- ▲ There is need for refrigerated vehicles to transport perishable and thermolabile medications.
- ▲ It is important to randomly re-analyze medications from the dispensing shelves and storage sites to assure their efficacy and quality.

Annex A: Assessment Results, by Hospital

Al-Basheer Hospital

Health care governorate: Amman

Hospital statistics*

Occupancy rate	74.6%
Bed size	811
Admissions	59,171
Outpatient visits	407,633
Inpatient days	219,633
Average length of stay (day)	3.7
Administrative staff	131
Physicians	561
Nurses	792
Medical record staff	60
Pharmacist	20
Pharmacist assistants	53
Ancillary and other staff	501
Average # of occupied beds (Inpatients)	605
Average # of daily prescriptions (Outpatients)	2,750
Average # of patients served per each pharmacy staff	46

*Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building*	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy, hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area	X		
Raw materials are stored according to manufacturer's recommendations	X		
Preparation area is supplied with all needed equipment and tools, and of sufficient space	X		
Preparation area is of nonporous and cleanable surfaces		X	

* Dispensaries were to be moved to new buildings at the time of the survey.

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools	X		
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers, and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references*		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids	X		
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

* References available: Middle East Index 1997, BNF 2000, NDFL 2002

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures for all pharmacy practices		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of department, and shares in its planning and development*	X		
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1 **		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

* A more general organization chart currently is available; it was designed without the involvement of the head of HPD.

** The ratio of technicians to pharmacists was found to be 53:20.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks	X		
Use of emergency stock is the responsibility of hospital director/head of HPD	X		
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing, HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD	X		

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense prescriptions not complying with formal MOH instructions	X		
Dispensers checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor, detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are already analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.88%
3.2	% of drugs prescribed by generic name	18.75%
3.3	% of drugs prescribed from the NDFL	76%
3.4	% of injections prescribed in outpatient prescriptions	1%
3.5	% of antibiotics prescribed in outpatient prescriptions	26%
3.6	% of drugs dispensed out of the prescribed	98.6%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.05%
3.8	Average % of individual variation for a set of indicator drugs	1.4%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	44%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	6%

Zarka Hospital

Health care governorate: Zarka

Hospital statistics*

Occupancy rate	77.9%
Bed size	300
Admissions	26,135
Outpatient visits	221,731
Inpatient days	84,173
Average length of stay (day)	3.2
Administrative staff	25
Physicians	198
Nurses	287
Medical record staff	5
Pharmacists	4
Pharmacist assistants	18
Ancillary and other staff	179
Average # of occupied beds (Inpatients)	234
Average # of daily prescriptions (Outpatients)	1,250
Average # of patients served per each pharmacy staff	68

*Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building		X	
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy, hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated		X	
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated		X	
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores		X	
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters		X	
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

* The ratio of technicians to pharmacists was found to be 18:4.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks	X		
Use of emergency stock is the responsibility of hospital director/head of HPD	X		
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD	X		

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL.	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies.		X
HPD request analysis for any medication showing any sign of physical changes.	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.54
3.2	% of drugs prescribed by generic name	11.5%
3.3	% of drugs prescribed from the NDF list	79%
3.4	% of injections prescribed in outpatient prescriptions	4%
3.5	% of antibiotics prescribed in outpatient prescriptions	34%
3.6	% of drugs dispensed out of the prescribed	96%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.2%
3.8	Average % of individual variation for a set of indicator drugs	1.24%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	38%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	5%

Princess Basma Hospital

Health care governorate: Irbid

Hospital statistics*

Occupancy rate	76.1%
Bed size	204
Admissions	15,561
Outpatient visits	273,606
Inpatient days	56,669
Average length of stay (day)	3.6
Administrative staff	41
Physicians	216
Nurses	216
Medical record staff	40
Pharmacist	8
Pharmacist assistants	18
Ancillary and other staff	216
Average # of occupied beds (Inpatients)	155
Average # of daily prescriptions (Outpatients)	1,350
Average # of patients served per each pharmacy staff	58

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated		X	
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration		X	
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink			X
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment are in clean/orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores		X	
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		

Qualitative indicator description	Yes	No	NA
Existence of continuous education program to orient and upgrade pharmacist knowledge		X	
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use polices and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1 *		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

* The ratio of technicians to pharmacists was found to be 18:8.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies that cover monthly needs/ emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD	X		

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD requests analysis for any medication showing any sign of physical changes.*		X

- If HPD receives any claim about the quality or efficacy of any medication, they inform MOH, and continue using it.

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.77%
3.2	% of drugs prescribed by generic name	18.8%
3.3	% of drugs prescribed from the NDFLlist	70%
3.4	% of injections prescribed in outpatient prescriptions	4%
3.5	% of antibiotics prescribed in outpatient prescriptions	30%
3.6	% of drugs dispensed out of the prescribed	98.2%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.08%
3.8	Average % of individual variation for a set of indicator drugs	0.42%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	36%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	12.6%

Jarash Hospital

Health care governorate: Jarash

Hospital statistics*

Occupancy rate	63.6%
Bed size	158
Admissions	14,058
Outpatient visits	101,007
Inpatient days	31,319
Average length of stay (day)	2.2
Administrative staff	32
Physicians	44
Nurses	170
Medical record staff	21
Pharmacist	2
Pharmacist assistants	10
Ancillary and other staff	111
Average # of occupied beds (Inpatients)	100
Average # of daily prescriptions (Outpatients)	575
Average # of patients served per each pharmacy staff	56

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		

Qualitative indicator description	Yes	No	NA
Dispensary equipped with enough windows		X	
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space		X	
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated		X	
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools, and of sufficient space			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability hot and cold water sink			X
Pharmacy has suitable and enough shelves and racks		X	
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets		X	
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL			X
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients		X	

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places		X	
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability		X	
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department		X	
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses		X	
The ward medication stocks are regularly checked and inspected by authorized pharmacists		X	
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal		X	
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements		X	
Pharmacists and technicians wear their white coats while on duty		X	
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 10:2.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks			X
Use of emergency stock is the responsibility of hospital director/head of HPD			X
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers			
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		

Investigational drugs are stored under supervision of head of HPD	X		
---	---	--	--

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity	X	
QC lab performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.32
3.2	% of drugs prescribed by generic name	7.8%
3.3	% of drugs prescribed from the NDFLlist	93%
3.4	% of injections prescribed in outpatient prescriptions	8%
3.5	% of antibiotics prescribed in outpatient prescriptions	57%
3.6	% of drugs dispensed out of the prescribed	94%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.4%
3.8	Average % of individual variation for a set of indicator drugs	26.3%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	8%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	5.6%

Al-Hussein Hospital / Al-Sult

Health care governorate: Al-Balqa

Hospital statistics*

Occupancy rate	75%
Bed size	152
Admissions	15,180
Outpatient visits	105,119
Inpatient days	41,584
Average length of stay (day)	2,7
Administrative staff	32
Physicians	156
Nurses	274
Medical record staff	10
Pharmacist	6
Pharmacist assistants	30
Ancillary and other staff	85
Average # of occupied beds	114
Average # of daily prescriptions	850
Average # of patients served per each pharmacy staff	27

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building*		X	
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows		X	
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space		X	
The dispensary is properly lighted and ventilated		X	
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated		X	
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area	X		
Raw materials are stored according to manufacturer's recommendations	X		
Preparation area is supplied with all needed equipment and tools		X	
Preparation area is of nonporous and cleanable surfaces		X	

The present pharmacy building is temporary and will be moved to a newly established suitable building.

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references*		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education	X		
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses		X	
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

* References available: Middle East Index 1999, BNF 2000

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development*	X		
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	

Qualitative indicator description	Yes	No	NA
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1 **		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

* The available is a general structure of the hospital, designed without any involvement of the head of HPD.

** The ratio of technicians to pharmacists was found to be 30:6.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks	X		
Use of emergency stock is the responsibility of hospital director/head of HPD	X		
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.74
3.2	% of drugs prescribed by generic name	14.6%
3.3	% of drugs prescribed from the NDFLlist	78.8%
3.4	% of injections prescribed in outpatient prescriptions	5%
3.5	% of antibiotics prescribed in outpatient prescriptions	38%
3.6	% of drugs dispensed out of the prescribed	96.7%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.17%
3.8	Average % of individual variation for a set of indicator drugs	1.43%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	32%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	9.5%

Al-Karak Hospital

Health care governorate: Al-Karak

Hospital statistics*

Occupancy rate	76.1%
Bed size	134
Admissions	11,264
Outpatient visits	700,51
Inpatient days	34,186
Average length of stay (day)	3.0
Administrative staff	48
Physicians	84
Nurses	201
Medical record staff	18
Pharmacist	4
Pharmacist assistants	11
Ancillary and other staff	117
Average # of occupied beds	102
Average # of daily prescriptions	600
Average # of patients served per each pharmacy staff	47

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequacy of dispensary space	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
Availability of tablet/capsule counting tools			X
Availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure*	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

* The medications are easily accessible at the emergency pharmacy.

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements		X	
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

*The ratio of technicians to pharmacists was found to be 11:4

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks	X		
Use of emergency stock is the responsibility of hospital director/head of HPD	X		
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature			
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD	X		

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.18
3.2	% of drugs prescribed by generic name	8%
3.3	% of drugs prescribed from the NDFLlist	79%
3.4	% of injections prescribed in outpatient prescriptions	4%
3.5	% of antibiotics prescribed in outpatient prescriptions	37%
3.6	% of drugs dispensed out of the prescribed	96%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.03%
3.8	Average % of individual variation for a set of indicator drugs	0.37%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	80%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	4.13%

Prince Faisal Hospital / Yajooz

Health care governorate: Zarka

Hospital statistics*

Occupancy rate	83.9%
Bed size	130
Admissions	15,819
Outpatient visits	124,084
Inpatient days	39,796
Average length of stay	2.9 days
Administrative staff	19
Physicians	63
Nurses	144
Medical record staff	4
Pharmacist	4
Pharmacist assistants	13
Ancillary and other staff	110
Average # of occupied beds	109
Average # of daily prescriptions	700
Average # of patients served per each pharmacy staff	47

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequacy of dispensary space	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
Availability of tablet/capsule counting tools			X
Availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

*The ratio of technicians to pharmacists was found to be 13:4.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks	X		
Use of emergency stock is the responsibility of hospital director/head of HPD	X		
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procure the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		

Investigational drugs are stored under supervision of head of HPD	X		
---	---	--	--

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor, detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.77
3.2	% of drugs prescribed by generic name	9.75%
3.3	% of drugs prescribed from the NDFLlist	78%
3.4	% of injections prescribed in outpatient prescriptions	0%
3.5	% of antibiotics prescribed in outpatient prescriptions	48%
3.6	% of drugs dispensed out of the prescribed	94%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.006%
3.8	Average % of individual variation for a set of indicator drugs	0.03%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	52%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	2.36%

Al-Tutanji hospital / Sahab

Health care governorate: Amman

Hospital statistics*

Occupancy rate	65.3%
Bed size	129
Admissions	11,351
Outpatient visits	57,651
Inpatient days	30,734
Average length of stay	2.7 days
Administrative staff	25
Physicians	83
Nurses	160
Medical record staff	9
Pharmacist	2
Pharmacist assistants	15
Ancillary and other staff	94
Average # of occupied beds	84
Average # of daily prescriptions	680
Average # of patients served per each pharmacy staff	45

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated		X	
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink			X
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure		X	
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education	X		
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		

Qualitative indicator description	Yes	No	NA
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacists provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

*The ratio of technicians: pharmacists was found to be 15:2.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks	X		
Use of emergency stock is the responsibility of hospital director/head of HPD	X		
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes*	X	

* In cases that HPD receives any claim about the quality or efficacy of any medication they inform MOH and continue using the drug.

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.75
3.2	% of drugs prescribed by generic name	15%
3.3	% of drugs prescribed from the NDFLlist	68%
3.4	% of injections prescribed in outpatient prescriptions	4%
3.5	% of antibiotics prescribed in outpatient prescriptions	35%
3.6	% of drugs dispensed out of the prescribed	99.3%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.12%
3.8	Average % of individual variation for a set of indicator drugs	0.49%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	16%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	2.97%

Princess Rahma Pediatric Hospital / Irbid

Health care governorate: Irbid

Hospital statistics*

Occupancy rate	85.9%
Bed size	109
Admissions	7,826
Outpatient visits	23,222
Inpatient days	34,181
Average length of stay (day)	4.4
Administrative staff	22
Physicians	46
Nurses	120
Medical record staff	19
Pharmacist	2
Pharmacist assistants	11
Ancillary and other staff	96
Average # of occupied beds	94
Average # of daily prescriptions	300
Average # of patients served per each pharmacy staff	30

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows		X	
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink			X
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions		X	

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure		X	
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education	X		
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 11:2.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procure the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.27
3.2	% of drugs prescribed by generic name	12%
3.3	% of drugs prescribed from the NDFLlist	85%
3.4	% of injections prescribed in outpatient prescriptions	0%
3.5	% of antibiotics prescribed in outpatient prescriptions	64%
3.6	% of drugs dispensed out of the prescribed	96%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.005%
3.8	Average % of individual variation for a set of indicator drugs	1.17%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	36%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	8%

Princess Badee'a Hospital / Irbid

Health care governorate: Irbid

Hospital statistics*

Occupancy rate	79.1%
Bed size	95
Admissions	12,075
Outpatient visits	16,527
Inpatient days	27,426
Average length of stay (day)	2.3
Administrative staff	16
Physicians	42
Nurses	103
Medical record staff	19
Pharmacist	3
Pharmacist assistants	5
Ancillary and other staff	71
Average # of occupied beds	75
Average # of daily prescriptions	350
Average # of patients served per each pharmacy staff	53

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space		X	
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*	X		
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 5:3.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.18
3.2	% of drugs prescribed by generic name	23%
3.3	% of drugs prescribed from the NDFLlist	90.4%
3.4	% of injections prescribed in outpatient prescriptions	3%
3.5	% of antibiotics prescribed in outpatient prescriptions	60%
3.6	% of drugs dispensed out of the prescribed	99.5%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.56%
3.8	Average % of individual variation for a set of indicator drugs	0.22%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	80%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	1.03%

Princess Raya Hospital / Dair Aby Sa'eed

Health care governorate: Irbid

Hospital statistics*

Occupancy rate	83.1%
Bed size	60
Admissions	6,720
Outpatient visits	74,917
Inpatient days	18,205
Average length of stay (day)	2.7
Administrative staff	11
Physicians	32
Nurses	117
Medical record staff	11
Pharmacist	3
Pharmacist assistants	9
Ancillary and other staff	90
Average # of occupied beds	50
Average # of daily prescriptions	300
Average # of patients served per each pharmacy staff	29

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows		X	
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated		X	
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated		X	
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services	X		
Pharmacist contribute in drug related committees in the hospital		X	
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty		X	
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 9:3.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.	X		
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.13
3.2	% of drugs prescribed by generic name	14.55%
3.3	% of drugs prescribed from the NDFLlist	82%
3.4	% of injections prescribed in outpatient prescriptions	4%
3.5	% of antibiotics prescribed in outpatient prescriptions	36%
3.6	% of drugs dispensed out of the prescribed	99.5%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.02%
3.8	Average % of individual variation for a set of indicator drugs	0.21%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	48%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	4.7%

Ma'an Hospital

Health care governorate: Ma'an

Hospital statistics*

Occupancy rate	62%
Bed size	122
Admissions	7,411
Outpatient visits	55,815
Inpatient days	27,612
Average length of stay (day)	3.7
Administrative staff	
Physicians	44
Nurses	92
Medical record staff	
Pharmacist	2
Pharmacist assistants	8
Ancillary and other staff	
Average # of occupied beds	76
Average # of daily prescriptions	220
Average # of patients served per each pharmacy staff	30

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows		X	
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space		X	
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink			X
Pharmacy has suitable and enough shelves and racks		X	
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock		X	
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists		X	
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

* The ratio of technicians to pharmacists was found to be 8:2.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks	X		
Use of emergency stock is the responsibility of hospital director/head of HPD	X		
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock		X	
During dispensing HPD gives priority to medications with shorter shelf life		X	
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH		X	
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist		X	
HPD has a contingency planning strategy in cases of drug shortages		X	
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.1
3.2	% of drugs prescribed by generic name	12%
3.3	% of drugs prescribed from the NDFLlist	77%
3.4	% of injections prescribed in outpatient prescriptions	3%
3.5	% of antibiotics prescribed in outpatient prescriptions	43%
3.6	% of drugs dispensed out of the prescribed	98%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.12%
3.8	Average % of individual variation for a set of indicator drugs	0.53%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	32%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	3.4%

Al-Eman Hospital / Ajloun

Health care governorate: Ajloun

Hospital statistics*

Occupancy rate	60.3%
Bed size	105
Admissions	8,425
Outpatient visits	95,012
Inpatient days	22,879
Average length of stay (day)	2.7
Administrative staff	
Physicians	44
Nurses	92
Medical record staff	
Pharmacist	3
Pharmacist assistants	6
Ancillary and other staff	
Average # of occupied beds	63
Average # of daily prescriptions	380
Average # of patients served per each pharmacy staff	49

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building		X	
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space		X	
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions		X	

Storage

Pharmacy and storage sites are secure*		X	
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

* The dispensary is shared in common site with the hospital's phone station.

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provide any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores		X	
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department		X	
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses		X	
The ward medication stocks are regularly checked and inspected by authorized pharmacists		X	
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters		X	
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal		X	
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory		X	
A sympathetic relationship exists between pharmacists and other health professionals		X	
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1 *	X		
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 6:3.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies required by the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks	X		
Use of emergency stock is the responsibility of hospital director/head of HPD	X		
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist		X	
HPD has a contingency planning strategy in cases of drug shortages		X	
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		

Investigational drugs are stored under supervision of head of HPD			X
---	--	--	---

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs		X
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QC lab performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.3
3.2	% of drugs prescribed by generic name	9.2%
3.3	% of drugs prescribed from the NDFLlist	84%
3.4	% of injections prescribed in outpatient prescriptions	5%
3.5	% of antibiotics prescribed in outpatient prescriptions	45%
3.6	% of drugs dispensed out of the prescribed	97%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	1.39%
3.8	Average % of individual variation for a set of indicator drugs	3.9%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	20%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	6.6%

Al-Nadeem Hospital /Ma'daba

Health care governorate: Ma'daba

Hospital statistics*

Occupancy rate	74.2%
Bed size	91
Admissions	9905
Outpatient visits	78094
Inpatient days	24653
Average length of stay (day)	2.5
Administrative staff	
Physicians	55
Nurses	140
Medical record staff	
Pharmacist	4
Pharmacist assistants	8
Ancillary and other staff	
Average # of occupied beds	68
Average # of daily prescriptions	480
Average # of patients served per each pharmacy staff	46

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows		X	
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space		X	
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated		X	
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks		X	
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions		X	

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provide any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*	X		
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 8:4.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist		X	
HPD has a contingency planning strategy in cases of drug shortages		X	
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	1.8
3.2	% of drugs prescribed by generic name	10.4%
3.3	% of drugs prescribed from the NDFLlist	83%
3.4	% of injections prescribed in outpatient prescriptions	0%
3.5	% of antibiotics prescribed in outpatient prescriptions	18%
3.6	% of drugs dispensed out of the prescribed	94.5%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.64%
3.8	Average % of individual variation for a set of indicator drugs	2.6%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	24%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	7.2%

Queen Rania Al-Abdullah Hospital / Wadi Mousa

Health care governorate: Al-Tafieleh

Hospital statistics*

Occupancy rate	30.6%
Bed size	69
Admissions	2,848
Outpatient visits	22,801
Inpatient days	7,699
Average length of stay (day)	2.7
Administrative staff	
Physicians	37
Nurses	89
Medical record staff	
Pharmacist	2
Pharmacist assistants	4
Ancillary and other staff	
Average # of occupied beds	21
Average # of daily prescriptions	130
Average # of patients served per each pharmacy staff	26

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock		X	
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references*		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provide any required drug information for health professionals and patients	X		

* References available: Medical Index 1998, NDFL 2002

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*	X		
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 4:2.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist		X	
HPD has a contingency planning strategy in cases of drug shortages		X	
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		

Investigational drugs are stored under supervision of head of HPD			X
---	--	--	---

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history	X		
For high-risk medications therapies there is double pharmacy check to ensure patient safety.	X		
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs		X
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.4
3.2	% of drugs prescribed by generic name	11%
3.3	% of drugs prescribed from the NDFLlist	78%
3.4	% of injections prescribed in outpatient prescriptions	4%
3.5	% of antibiotics prescribed in outpatient prescriptions	54%
3.6	% of drugs dispensed out of the prescribed	96%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.3%
3.8	Average % of individual variation for a set of indicator drugs	1.3%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	52%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	6.5%

Ghor Al-Safi Hospital

Health care governorate: Al-Karak

Hospital statistics*

Occupancy rate	74.8%
Bed size	62
Admissions	4,389
Outpatient visits	28,568
Inpatient days	15,569
Average length of stay (day)	3.5
Administrative staff	
Physicians	34
Nurses	88
Medical record staff	
Pharmacist	3
Pharmacist assistants	6
Ancillary and other staff	
Average # of occupied beds	46
Average # of daily prescriptions	220
Average # of patients served per each pharmacy staff	29

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X

Preparation area is of nonporous and cleanable surfaces			X
---	--	--	---

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink			X
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock		X	
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital		X	
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*	X		
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 6:3.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs		X
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes		X

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	1.9
3.2	% of drugs prescribed by generic name	3.2
3.3	% of drugs prescribed from the NDFLlist	95
3.4	% of injections prescribed in outpatient prescriptions	3
3.5	% of antibiotics prescribed in outpatient prescriptions	47
3.6	% of drugs dispensed out of the prescribed	100
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.26
3.8	Average % of individual variation for a set of indicator drugs	1.6
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	20
3.10	Average % of a set unexpired indicator drugs	100
3.11	Average % of time out of stock for a set indicator drugs	2.8

Al-Ramtha Hospital / Al-Ramtha

Health care governorate: Irbid

Hospital statistics*

Occupancy rate	69.9
Bed size	56
Admissions	7395
Outpatient visits	77727
Inpatient days	14294
Average length of stay (day)	1.9
Administrative staff	
Physicians	40
Nurses	89
Medical record staff	
Pharmacist	3
Pharmacist assistants	7
Ancillary and other staff	
Average # of occupied beds	39
Average # of daily prescriptions	400
Average # of patients served per each pharmacy staff	44

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space		X	
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references*		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

*Available references Drugs in Jordan 2002

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists		X	
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters		X	
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 7:3.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature			
HPD has a system to monitor out-of-date medications and medical supplies			
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		

Investigational drugs are stored under supervision of head of HPD			X
---	--	--	---

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.3
3.2	% of drugs prescribed by generic name	9.8%
3.3	% of drugs prescribed from the NDFLlist	84%
3.4	% of injections prescribed in outpatient prescriptions	2%
3.5	% of antibiotics prescribed in outpatient prescriptions	47%
3.6	% of drugs dispensed out of the prescribed	93%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.9%
3.8	Average % of individual variation for a set of indicator drugs	8.04%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	20%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	6.8%

Al-Yarmouk Hospital / Um-Qaise

Health care governorate: Irbid

Hospital statistics*

Occupancy rate	50.9
Bed size	50
Admissions	2,962
Outpatient visits	43,837
Inpatient days	6,023
Average length of stay (day)	2.1
Administrative staff	
Physicians	30
Nurses	71
Medical record staff	
Pharmacist	2
Pharmacist assistants	9
Ancillary and other staff	
Average # of occupied beds	25
Average # of daily prescriptions	260
Average # of patients served per each pharmacy staff	26

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated*	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

*Lighted but not ventilated

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references*		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

* References available: Meppo 2003, Medical Index 2003, NDFL 2002

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability		X	
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department		X	
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses		X	
The ward medication stocks are regularly checked and inspected by authorized pharmacists		X	
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel			
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory		X	
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1 *		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 9:2.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock*	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

*In nursing stations there were expired medications not removed

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians		X	
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs		X
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.2
3.2	% of drugs prescribed by generic name	18
3.3	% of drugs prescribed from the NDFLlist	81
3.4	% of injections prescribed in outpatient prescriptions	1
3.5	% of antibiotics prescribed in outpatient prescriptions	55
3.6	% of drugs dispensed out of the prescribed	96
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.44
3.8	Average % of individual variation for a set of indicator drugs	0.92
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	40
3.10	Average % of a set unexpired indicator drugs	100
3.11	Average % of time out of stock for a set indicator drugs	7

Abu-Obaidah Hospital / Jordan Valley

Health care governorate: Irbid

Hospital statistics*

Occupancy rate	74.4
Bed size	46
Admissions	4,848
Outpatient visits	73,958
Inpatient days	12,495
Average length of stay (day)	2.6
Administrative staff	
Physicians	29
Nurses	95
Medical record staff	
Pharmacist	1
Pharmacist assistants	8
Ancillary and other staff	
Average # of occupied beds	34
Average # of daily prescriptions	280
Average # of patients served per each pharmacy staff	35

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets		X	
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients		X	

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores		X	
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability		X	
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department		X	
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists		X	
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital		X	
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal		X	
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages		X	
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory		X	
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

* The ratio of technicians to pharmacists was found to be 8:1.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity		X	
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies		X	
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life		X	
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up		X	

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians		X	
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		

Investigational drugs are stored under supervision of head of HPD			X
---	--	--	---

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs		X
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.65
3.2	% of drugs prescribed by generic name	12%
3.3	% of drugs prescribed from the NDFLList	90%
3.4	% of injections prescribed in outpatient prescriptions	6%
3.5	% of antibiotics prescribed in outpatient prescriptions	49%
3.6	% of drugs dispensed out of the prescribed	97%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.07%
3.8	Average % of individual variation for a set of indicator drugs	1.3%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	40%
3.10	Average % of a set unexpired indicator drugs	100
3.11	Average % of time out of stock for a set indicator drugs	4%

Al-Shuneh/South Hospital

Health care governorate: Al-Balqa

Hospital statistics*

Occupancy rate	57
Bed size	39
Admissions	3,432
Outpatient visits	24,306
Inpatient days	8,119
Average length of stay (day)	2.4
Administrative staff	
Physicians	24
Nurses	63
Medical record staff	
Pharmacist	1
Pharmacist assistants	7
Ancillary and other staff	
Average # of occupied beds	22
Average # of daily prescriptions	150
Average # of patients served per each pharmacy staff	22

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock		X	
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores		X	
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 7:1.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians		X	
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.42
3.2	% of drugs prescribed by generic name	10.7%
3.3	% of drugs prescribed from the NDFLlist	80.5%
3.4	% of injections prescribed in outpatient prescriptions	3%
3.5	% of antibiotics prescribed in outpatient prescriptions	49%
3.6	% of drugs dispensed out of the prescribed	99.6%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.26%
3.8	Average % of individual variation for a set of indicator drugs	0.9%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	32%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	10.03%

Al-Mafraq Hospital/ Gynecology and Pediatrics (G/P) / Al-Mafraq

Health care governorate: Al-Mafraq

Hospital statistics*

Occupancy rate	55.2
Bed size	102
Admissions	9786
Outpatient visits	
Inpatient days	20549
Average length of stay (day)	2.1
Administrative staff	
Physicians	22
Nurses	109
Medical record staff	
Pharmacist	2
Pharmacist assistants	6
Ancillary and other staff	
Average # of occupied beds	56
Average # of daily prescriptions	20
Average # of patients served per each pharmacy staff	10

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks		X	
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists		X	
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters	X		
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 6:2.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

Qualitative indicator description	Yes	No	NA
All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		

All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.2%
3.2	% of drugs prescribed by generic name	7.3%
3.3	% of drugs prescribed from the NDFLlist	91.8
3.4	% of injections prescribed in outpatient prescriptions	0%
3.5	% of antibiotics prescribed in outpatient prescriptions	69%
3.6	% of drugs dispensed out of the prescribed	98%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	1.5%
3.8	Average % of individual variation for a set of indicator drugs	1.1%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	44%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	2.7%

Mu'ath Bin Jabal Hospital / Jordan Valley

Health care governorate: Irbid

Hospital statistics*

Occupancy rate	66.5
Bed size	32
Admissions	2,903
Outpatient visits	50,926
Inpatient days	7,381
Average length of stay (day)	2.5
Administrative staff	
Physicians	27
Nurses	75
Medical record staff	
Pharmacist	1
Pharmacist assistants	5
Ancillary and other staff	
Average # of occupied beds	21
Average # of daily prescriptions	300
Average # of patients served per each pharmacy staff	54

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of space		X	
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration		X	
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink			X
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters		X	
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 5:1.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.27
3.2	% of drugs prescribed by generic name	7.9%
3.3	% of drugs prescribed from the NDFLlist	86.8
3.4	% of injections prescribed in outpatient prescriptions	1%
3.5	% of antibiotics prescribed in outpatient prescriptions	54%
3.6	% of drugs dispensed out of the prescribed	98.2%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.02%
3.8	Average % of individual variation for a set of indicator drugs	0.06%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	52%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	6.8%

Princess Salma Hospital / Theban

Health care governorate: Ma'daba

Hospital statistics*

Occupancy rate	18.8
Bed size	32
Admissions	684
Outpatient visits	2458
Inpatient days	1610
Average length of stay (day)	2.4
Administrative staff	
Physicians	23
Nurses	41
Medical record staff	
Pharmacist	1
Pharmacist assistants	6
Ancillary and other staff	
Average # of occupied beds	6
Average # of daily prescriptions	50
Average # of patients served per each pharmacy staff	8

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated			
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink		X	
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL		X	
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information from health professionals and patients		X	

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters		X	
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital			X
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal			X
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients			X
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements			
Pharmacists and technicians wear their white coats while on duty			
All pharmacy personnel use the forms and inventory records and documents assigned by MOH			

The ratio of technicians to pharmacists was found to be 6:1.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		

Investigational drugs are stored under supervision of head of HPD			X
---	--	--	---

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.37
3.2	% of drugs prescribed by generic name	12.7
3.3	% of drugs prescribed from the NDFLlist	86.5
3.4	% of injections prescribed in outpatient prescriptions	4
3.5	% of antibiotics prescribed in outpatient prescriptions	52
3.6	% of drugs dispensed out of the prescribed	95
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	1.83
3.8	Average % of individual variation for a set of indicator drugs	0.57
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	28
3.10	Average % of a set unexpired indicator drugs	100
3.11	Average % of time out of stock for a set indicator drugs	5.9

Princess Iman Hospital / Ma'adi

Health care governorate: Al-Balqa

Hospital statistics*

Occupancy rate	69.8
Bed size	30
Admissions	2,971
Outpatient visits	27,440
Inpatient days	7,643
Average length of stay (day)	2.6
Administrative staff	
Physicians	27
Nurses	75
Medical record staff	
Pharmacist	1
Pharmacist assistants	5
Ancillary and other staff	
Average # of occupied beds	21
Average # of daily prescriptions	100
Average # of patients served per each pharmacy staff	21

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space		X	
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity		X	
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks		X	
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions	X		

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets		X	
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock		X	
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information for health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores		X	
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability		X	
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department		X	
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses		X	
The ward medication stocks are regularly checked and inspected by authorized pharmacists		X	
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters		X	
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal		X	
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients			
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1 *		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

* The ratio of technicians to pharmacists was found to be 5:1.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock		X	
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	

Drug monitoring to patients is the responsibility of HPD		X
--	--	---

Quality assurance

Qualitative indicator description	Yes	No
All drug batches are issued to the hospital, analyzed for quality conformity	X	
QC lab performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.5
3.2	% of drugs prescribed by generic name	16%
3.3	% of drugs prescribed from the NDFLlist	87%
3.4	% of injections prescribed in outpatient prescriptions	4%
3.5	% of antibiotics prescribed in outpatient prescriptions	35%
3.6	% of drugs dispensed out of the prescribed	97%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.37%
3.8	Average % of individual variation for a set of indicator drugs	0.88%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	28%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	12.8%

Al-Rwaished Hospital / Al-Rwaished

Health care governorate: Al-Mafraq

Hospital statistics*

Occupancy rate	15.3
Bed size	17
Admissions	540
Outpatient visits	5,788
Inpatient days	948
Average length of stay (day)	1.8
Administrative staff	
Physicians	15
Nurses	19
Medical record staff	
Pharmacist	1
Pharmacist assistants	2
Ancillary and other staff	
Average # of occupied beds	3
Average # of daily prescriptions	100
Average # of patients served per each pharmacy staff	34

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public	X		
Dispensary equipped with enough windows	X		
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space	X		
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks		X	
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions		X	

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock			
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education	X		
HPD provides any required drug information from health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores	X		
Pharmacy keys are kept with nominated pharmacist		X	
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department	X		
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses		X	
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organization structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel	X		
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters		X	
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital	X		
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal	X		
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients		X	
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*	X		
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty	X		
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

The ratio of technicians to pharmacists was found to be 2:1.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH	X		
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procure the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		

Investigational drugs are stored under supervision of head of HPD			X
---	--	--	---

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs		X
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.74
3.2	% of drugs prescribed by generic name	4%
3.3	% of drugs prescribed from the NDFList	86%
3.4	% of injections prescribed in outpatient prescriptions	7%
3.5	% of antibiotics prescribed in outpatient prescriptions	67%
3.6	% of drugs dispensed out of the prescribed	99%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	0.08%
3.8	Average of individual variation for a set of indicator drugs	0.16%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	60%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	10%

Al-Mafraq Hospital / Al-Mafraq

Health care governorate: Al-Mafraq

Hospital statistics*

Occupancy rate	58.2
Bed size	70
Admissions	4,285
Outpatient visits	121,524
Inpatient days	14,864
Average length of stay (day)	3.5
Administrative staff	
Physicians	37
Nurses	122
Medical record staff	
Pharmacist	3
Pharmacist assistants	10
Ancillary and other staff	
Average # of occupied beds	41
Average # of daily prescriptions	430

* Source: MOH Annual statistics book 2003

Assessment of Hospital Pharmacy Department (HPD)

Structure

Pharmacy premises

Qualitative indicator description	Yes	No	NA
The suitability of the building	X		
The availability of dispensing counter accessible to the public		X	
Dispensary equipped with enough windows		X	
Pharmacy premises are clean, tidy and hygienic	X		
Adequacy of dispensary space			
The dispensary is properly lighted and ventilated	X		
Temperature and humidity are under control		X	
Adequate storage capacity	X		
Temperature and humidity of the stores are controlled		X	
Store is properly lighted and ventilated	X		
Temperature of refrigerators and freezers are controlled		X	
Medications are protected from direct exposure to sunlight, heat or unnecessary refrigeration	X		
Presence of pharmaceutical preparation area			X
Raw materials are stored according to manufacturer's recommendations			X
Preparation area is supplied with all needed equipment and tools			X
Preparation area is of nonporous and cleanable surfaces			X

Tools and equipment

Qualitative indicator description	Yes	No	NA
The availability of tablet/capsule counting tools			X
The availability of hot and cold water sink	X		
Pharmacy has suitable and enough shelves and racks	X		
Store has suitable and enough shelves and racks	X		
Pharmacy and stores are supplied with enough refrigerators, freezers and air conditions		X	

Storage

Pharmacy and storage sites are secure	X		
Narcotics are stored in secured cabinets	X		
Controlled drugs are separate and secure	X		
Pharmacy maintains night-duty stock	X		
Premises and equipment maintained in clean and orderly operating conditions	X		

Drug information

Pharmacy is supplied with basic references		X	
Existence of enough copies of NDFL	X		
Pharmacy is supplied with basic training aids		X	
Pharmacists have enough time, capacity, and training to provide patient education		X	
HPD provides any required drug information from health professionals and patients	X		

Safety and security

Pharmacy records, ledgers, vouchers, prescriptions are stored in safe/secured places	X		
Presence of fire alarm systems and anti-fire equipment in pharmacy and stores		X	
Pharmacy keys are kept with nominated pharmacist	X		
Pharmacists are accountable for stock safety, drug validity, inventory control, drug supply records and drug availability	X		
Inpatient and outpatient pharmacies are regularly checked by the head of pharmacy department		X	
Adequate and suitable space are available at ward or nursing stations for the storage and preparation of medication doses	X		
The ward medication stocks are regularly checked and inspected by authorized pharmacists	X		
Availability of written policies and procedures to check drug inventory stocks, expiration dates		X	
All drug stocks are properly labeled to avoid mix-up in medications	X		

Organizational structure and human resources

Qualitative indicator description	Yes	No	NA
Head of HPD has organization structure documents of his department, and shares in its planning and development		X	
The organization structure of HPD has been planned and developed to meet job requirement		X	
HPD has sufficient numbers and categories of personnel		X	
HPD has a written policies to cover all functions and responsibilities of the personnel		X	
All pharmacy personnel have written job descriptions		X	
HPD personnel are trained to work in normal working conditions and in natural or manmade disasters		X	
Head of HPD shares in the financial planning for the provision of pharmacy services		X	
Pharmacist contribute in drug related committees in the hospital		X	
Pharmacists participate in activities related to drug use, evaluation, selection, procurement and disposal		X	
Existence of continuous education program to orient and upgrade pharmacist knowledge			X
Pharmacist provide advice about proper drug alternatives to health professionals in cases of drug shortages	X		
Pharmacists are oriented, trained to provide clinical pharmacy services to patients		X	
Pharmacists are responsible and accountable for drug-use policies and routine inspection of all medication inventory	X		
A sympathetic relationship exists between pharmacists and other health professionals	X		
HPD assigns a pharmacist to respond to questions and official needs of other health professionals or patients	X		
Pharmacy technicians are allowed to dispense medications to patients	X		
The ratio of technicians to pharmacists does not exceed 2:1*		X	
Pharmacy technicians are well trained to perform their job requirements	X		
Pharmacists and technicians wear their white coats while on duty		X	
All pharmacy personnel use the forms and inventory records and documents assigned by MOH	X		

* The ratio of technicians to pharmacists was found to be 10:3.

Processing and outcomes

Medications needs

The hospital's yearly requirements of medications and medical supplies are decided centrally by the supply directorate according to issued quantities of MMS records.

The quantities of medications and medical supplies assigned to the hospital are subjected to reductions by the procurement committee due to budget limitations.

Stock and inventory control

Qualitative indicator description	Yes	No	NA
HPD maintains sufficient stocks of medications and medical supplies to cover the monthly needs in addition to emergency stocks		X	
Use of emergency stock is the responsibility of hospital director/head of HPD		X	
Drugs and medical supplies are stored in a manner to protect their identity and integrity	X		
Drugs and medical supplies are stored at proper temperature	X		
HPD has a system to monitor out-of-date medications and medical supplies	X		
Recalled or expired medications and supplies are removed from stock	X		
During dispensing HPD gives priority to medications with shorter shelf life	X		
The expirations or shortages of drugs and medical supplies are due to improper estimation of needs	X		

Pharmacy records and documents

All medications and medical supplies are recorded in the assigned supply ledgers	X		
All procurement invoices, supply vouchers are kept in special files	X		
All forms used are designed centrally by MOH	X		
If any form need to be added, amended or deleted a request is raised to MOH		X	
Forms are ordered in enough quantities to cover the needs	X		
Pharmacy documents are maintained in folders to avoid mix-up	X		

Supply process

Drug supply order to MMS are managed at regular program	X		
Drugs are dispensed from MMS in negotiable manner	X		
Hospital provide needed transportation	X		
Drugs are dispensed to the hospital by technicians	X		
Dispensing narcotics from MMS is done according to MOH guidelines	X		
Presence of refrigerator vehicle		X	
HPD checks and match medication and supplies with their vouchers	X		
Qualitative indicator description	Yes	No	NA
In cases of discrepancies a check with MMS is done	X		
Medication distribution to satellite pharmacies is done by open-negotiable quantities order form	X		
Medication stock in satellite pharmacies is inspected by an assigned pharmacist	X		
HPD has a contingency planning strategy in cases of drug shortages	X		
In medication shortages MOH supply directorate is informed	X		
In medication shortages hospital director has authority to procure within a limited budget	X		
HPD procures the drug immediately if its shortage delays or compromises patient's health	X		
All stocks are inspected regularly to ensure absence of outdated, unusable or mislabeled products	X		
Investigational drugs are stored under supervision of head of HPD			X

Dispensing

Medications are issued to nursing stations according to nursing open-request form	X		
In critically ill patients HPD has access to medical history		X	
For high-risk medications therapies there is double pharmacy check to ensure patient safety.		X	
Packaging for non-sterile pharmaceutical preparations identifies contents, strength, use date and usage instructions.			X
All medications dispensed have written instructions to patients, showing how to use the medication in a clear way.	X		
Medications are only dispensed against formally written prescription	X		
Pharmacists are authorized not to dispense not complying with formal MOH instructions	X		
Dispenser checks the content of prescription	X		
HPD has developed a procedure to improve dispensing time and processes for better patient understanding		X	

Monitoring of medication use

Qualitative indicator description	Yes	No
HPD has a program to monitor detect and report ADRs		X
Information regarding ADRs is reported to head of HPD		X
High risk patients are identified and monitored for ADRs		X
High risk medications are identified and monitored		X
HPD has procedures to monitor dispensing of expensive drugs	X	
Drug monitoring to patients is the responsibility of HPD		X

Quality assurance

Qualitative indicator description	Yes	No
All drug batches issued to the hospital are analyzed for quality conformity by MOH QCL	X	
QCL performs additional random analysis on medications from over the shelves of pharmacies		X
HPD request analysis for any medication showing any sign of physical changes	X	

Drug utilization indicators

Indicator code	Indicator	Result
3.1	Average no. of drugs prescribed per prescription	2.5
3.2	% of drugs prescribed by generic name	17%
3.3	% of drugs prescribed from the NDFLlist	78%
3.4	% of injections prescribed in outpatient prescriptions	2%
3.5	% of antibiotics prescribed in outpatient prescriptions	41%
3.6	% of drugs dispensed out of the prescribed	96%
3.7	Weighted average % of inventory variation for a set of indicator drugs in the pharmacy	1.9%
3.8	Average % of individual variation for a set of indicator drugs	1.4%
3.9	Average % of stock records that corresponds with physical counts for a set of indicator drugs	36%
3.10	Average % of a set unexpired indicator drugs	100%
3.11	Average % of time out of stock for a set indicator drugs	4.2%

Annex B. Indicator Lists

Indicator Drugs: General Hospitals

Description	Strength	Dosage Form
Paracetamol	500 mg	Tab.
Metronidazol	250mg	Tab.
Amoxycillin	500mg	Caps.
Erythromycin	400mg	Tab.
Cotrimoxazole	80/400	Tab.
Penicillin Procaine	400,000 u	Vial
Oral Rehydration Salt	Sachet	Powder
Aminophylline	100mg/ml	Amp.
Glibenclamide	5mg	Tab.
Metformin	850mg	Tab.
Rifampicin	300mg	Tab.
Ampicillin	1gm	Vial
Salbutamol	2mg	Tab.
Folic Acid	5 mg	Tab.
Ferrous Gluconate	300mg	Tab.
Famotidine	20mg	Tab.
Diazepam	5mg	Tab.
Simvastatin	10mg	Tab.
Digoxin	0.25mg	Tab.
Atenolol	100mg	Tab.
Ibuprofen	400mg	Tab.
Paracetamol	120mg/5ml	Susp.
Frusemide	40mg	Tab.
Captopril	25mg	Tab.
Aspirin	300mg	Tab.

Indicator Drugs: Princess Rahma Pediatric Hospital

Description	Strength	Dosage Form
Paracetamol	125 mg	Supp.
Metronidazol	250 mg	Susp.
Amoxycillin	250 mg	Susp.
Erythromycin	250 mg	Susp.
Cotrimoxazole	80/400	Susp.
Benzyl Penicillin, Crystalline	1,000,000 U	Vial
Oral Rehydration Salt	Sachet	Powder
Salbutamol Respirator Solution	5mg/ml	Bottle
Human Insulin 30/70	100U/ml	Vial
Desferrioxamine mesilate	500mg/vial	Vial
Ampicillin	250mg	Vial
Dexamethasone	5mg/ml	Amp.
Salbutamol	2mg/5ml Syrup	Bottle
Multivitamin	Multi-ingredient	Drops
Iron, Oral Drops	10 mg/drop	Bottle
Ranitidine	75mg/5ml	Syrup
Diazepam	5 mg/ml	Amp.
Folic Acid	5 mg	Tab.
Digoxin Pediatric/ Geriatric	0.0625mg	Tab.
Diclofenac Sodium	25 mg	Tab.
Ibuprofen	100 mg/5ml	Syrup
Paracetamol	120 mg/5 ml	Susp.
Frusemide	40 mg	Tab.
Captopril	25 mg	Tab.
Aspirin	100 mg	Tab.

Annex C. References

- Bond CA, Raehl CL, Franke T. 2000. "Clinical Pharmacy Services. Pharmacy Staffing and the Total Cost of Care in United States Hospitals." *Pharmacotherapy* 20 (6): 609-621.
- Management Sciences for Health (MSH). 1995. *Rapid Pharmaceutical Management Assessment: An Indicator-Based Approach*. Boston: Management Sciences for Health.
- Ministry of Health, Jordan. 2003. Annual Statistics Book. Amman.
- Ministry of Health, Jordan. 2002. National Drug Formulary List. Amman.
- Schumock GT, Butler MG, Meek PD, Vermeulen LC, Arondekar BV, Bauman JL. 2003. "Evidence of the Economic Benefit of Clinical Pharmacy Services; 1996-2000." *Pharmacotherapy* 23 (1): 113-125.
- Talafha, Hamza and Rash Ghannoum. November 2004. *Hospital Pharmacy and Inventory Control Assessment Manual*. Report No. 17. Amman: Partners for Health Reformplus/Jordan.
- World Health Organization (WHO). 1993. *How to investigate drug use in health facilities: Selected drug use indicators. WHO/DAP/93.1. Action Programme on Essential Drugs*. Geneva: WHO.
- Wong JQ. and Luna LD. 2001. *An Assessment of the Drug Management Systems in the Center for Health Development (CHD)*, Northern Mindanao. Boston: Management Science for Health (MSH).